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Strategies For Sustainable Agriculture and Irrigation in Tamil Nadu

Challenges Facing Industry

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EDITORIAL - SOME HIGHLIGHTS

I. General Economic Scene

State

Plan

Tamil Nadu's VIII Plan, which was proposed at Rs. 9500 crores, has, because of the state's improved Balance from Current Revenue (BCR), increase in union support for externally aided projects, better mobilisation of small savings and higher level of negotiated loans, been raised to 10,200 crores. The improvement in BCR is expected at Rs. 2400 crores : the union support for externally aided projects has increased from Rs. 2500 crores to Rs. 3000 crores : small savings collections and negotiated loans will bring in an additional Rs 3700 crores - for the VIII Plan. The Tamil Nadu Economic Appraisal - 1990 reports that the VII Plan totalled Rs. 7200 crores

Credit and foreign assistance

According to this Appraisal, the state has marginally improved its ranking in Union investment, having gone up from the 9th place in 1989-90 at 4.9 per cent of all Union investments to the 8th place in 1989-90 at Rs. 5902 crores or 5.2 per cent. It accounted for an additiona investment of Rs 1004 crores during 1989-90 which constitutes at 6.1 per cent of the Rs. 16,409 crores at the national level. The improvement in 1989-90, reported in the appraisal document shall be set against the 1989-90 budget which states that the state's share of the union investment declined sharply from 10 per cent in 1969 to 5.21 per cent in 1989. From all India financial institutions, Tamil Nadu's share has gone up from Rs 400 crores in 1985 to Rs. 905 crores in 1989-90, which was the terminal year of the VII Plan and which was 9.77 per cent of the total amount disbursed. But in terms of per capita investment, the state at Rs. 187.92 crores in 1989-90 was the smallest of the 4 southern states and cumulatively it ranked fifth at Rs. 1087 crores The government reports that the total value of committed credit by external agencies available to the state government till August 1992 was Rs.2500 crores covering both ongoing projects

and those in the pipelines. These projects have been funded by the World Bank, ADB, DANIDA, IFAD, USAID, and EEC. The government also reports that it is gearing to step up the utilisation of the credits. Following the increases in the 1992-93 Annual Plan (see Vol. XXII pp 175-176) and the VIII Plan referred to earlier including increased union support, the state government will be able to allocate the rupee resources for these projects. These externally funded projects which have resulted from the states good performance will also relieve the acute resources crunch faced by the state. The state has also taken the lead in the country in full fledged computerisation of district level annual credit plans from this financial year with the launch of NABARD's Service Area and Monitoring System (SAMIS) this April.

Climate and Prices

The weather in May was hot and dry, the temperature climbing to 40° celsius and above. Towards the end of May, the South West monsoon was expected to break in Kerala and come onto Kanyakumari. There were also the usual summer showers towards the end of the very hot season in Madras. CSO's monthly abstract of statistics for the period after November has not been issued and so the price data reported in the last issue remains unchanged.

Power

Power in the state in May was normal with no power cuts or load shedding. TNEB has approved a plan of action to reduce the very large loss of 18.5 per cent by 1.85 per cent. It involves standardisation of the conductor sizes, upgradation of power distribution by voltage and the calibration of low tension metres. The Board is not able to assess the transmission and distribution losses in the state because of the non provision of meters to agricultural services and huts. This is a case where the initial cost of providing meters estimated at Rs. 45 crores might not be recouped by setting up of meters because the high incidence of losses are being identified as being due to voltage drop. The state government to help the ailing B & C mill has exempted it from any power cut for 3 years. It has had to amend the Tamil Nadu Restriction on Consumption of Electricity Order 1976 for this concession. It is questionable whether sick units should be kept alive at all and whether they should receive electricity subsidy like this. Applications from rich farmers are pouring into TNEB (over 2000 in 2 months) for getting priority correction for their pumpsets under the Board's self financing scheme. In view of the collapse of 2000 MW nuclear Koodankulam power project because of the dissolution of the USSR, the state government and TNEB are considering starting Koodankulam with a 200 MW unit, using indigenous technology. It has also under consideration 600 MW gas based plant at Pillayperumalinallur but its gas requirement of 2 million cubic metres a day, is leading to the examining of whether the plant can be run with furnace oil from the country's refineries. The government is opening up the sector to the private agencies. It has invited bids from private parties for both its 500 MW coal based projects at Cuddalore and Tuticorin, two more lignite based plants of 210 MW each near Neyveli on which an NRI and a group of industrialists are each getting involved. For the second project the industrialists are willing to buy the fuel from NLC, the machinery from. BHEL,

locating the plant at Srimushnam, near Neyveli. At Basin Bridge, TNEB has proposed a 120 MW thermal plant to be financed by ODA, Japan, on which two bids - one from Mitsubishi and the other from Sumifomo have been received and are being considered. To attract private parties, the state government is adopting a flexible formula on the state's equity participation to be decided on a case by case basis; equ lling the tariff for each privately generated power to be equal to the highest unit cost of production of TNEB and also permitting power generation for captive consumption, with any excess being banked with TNEB. Further, the state which has exhausted most of its viable hydel power and cannot expand its thermal capacity, is now trying to non conventional energy, particularly wind energy. Here the state needs to gird itself to tap the full potential under the VIII Plan period. 22 sites in the 3 southern districts of Chidambaram, Nellai Kattabomban, and Kanyakumari have been identified by IADA as having rich potential for wind energy. Another breakthrough in energy saving tea factories is through their use of integrated solar air heating system which the Erinkadu Tea Estate in Coonoor has demonstrated. The technology has been indigenously developed and gives the tea factories the needed 100-130 celsius temperature for drying the tea leaves.

In May the power situation in the country deteriorated. A number of states-Kerala, Karnataka, AP. UP, WB and Orissa imposed power cuts-some for both AT&LT users. Most of this shortage of power was due to the declining share of hydel generation. The government states that hydel power has declined from 45.96 per cent in 1966 to 28 per cent at end of 1992 and is likely to persist through at the VIII Plan. Against this depressing scenario, two positive points should be noted. First, of the vast hydel potential of the country, only 14 per cent has been developed and a further 7 per cent is under development. According to CEA, the economically exploitable hydel potential is 84,340 MW at 60 per cent load factor. During the VIII Plan only 6247.9 MW of hydro capacity has been envisaged. This should be rapidly expanded during the IX Plan and for that steps should be taken in the VII Plan. The second positive point is that the Energy Sector Management Assistance Programme (ESMAP) of the World Bank has identified 51 mini hydel projects in the 4 southern states and Punjab to be funded by the Bank at $70 million. The government reports that industries with captive power plants have been hit by these decision. South Eastern Coal fields are not to allocate under the priority category for these plants. This means that these industries will have to reduce their production drastically because they will have only the amount of coal available to non core sector users. A serious factor is that the economy faces an VIII Plan power deficit of 48,000 MW, but the Planning Commission has only allotted Rs. 78,000 crores which will meet only half the deficit. It is hoped that the balance of 24000 MW will be provided by the private sector. But not only is there this rather vague hope and reliance on the private sector, the possibility of the government being able to raise Rs. 78,000 crores is doubtful, so that the VIII Plan raises a question mark over its power availability which will affect the entire economy.

Water

Unlike from Madras city, 13 districts are facing adverse conditions of acute water scarcity and migration of landless labourers from these districts in search

of employment has already begun. The worst water scarcity districts are Tiruchi; Periyar, Salem, Ramanathapuram, Pasumpon Thevar, Kamarajar, Chidambaram, Nellai Kattaboman, Kanyakumari, Madurai and Dindigul - Anna districts following close behind. These are the districts where the precipitation during the North East monsoon last year was below normal and so drinking water scarcity started in April itself. The government has made 2 grants - of Rs. 6.72 crores and an additional Rs. 6 crores to these districts from which 1773 bore wells were drilled and all existing wells deepened The government states that all rural habitations will be provided with atleast one source of water. TWAD is implementing a major water supply project with Rs. 322 crores as World Bank aid. In particular water supply scheme to 81 medium towns and 955 rural habitations are being provided to Coimbatore, Madurai and Salem. A question that the government - both at the state and local panchayat level - should face is whether provision for meeting drinking water scarcity in every summer period should not be provided as a normal part of every annual budget

Transportation

Tuticorin Port reports a record handling of cargo at 58.68 lakh tonnes and 741 ships during 1991-92. 7.68 lakh tonnes were exported through the port and 5 1 lakh tonnes were imported. The Madras Port also reports a record traffic in 1991-92 to the point where other ports like Bombay are being compared with its throughout. On road transport in the state, the government reports that in 1990-91 its 15 passenger transport corporations with a total fleet of 14,251 buses, have made a net loss of Rs· 43.87 crores. All the Corporations except the Thanthai Periyar Transport Corporation suffered losses, following the losses registered in the previous year. The question arises whether some of the state transport corporations should not be let to private operators, the state supplementing the operation in the case of remote rural areas and out of the way hilly places. Indian Airlines reports that the first aircraft hanger in the southern region is being set up in the Madras airport and will be ready by end of 1993. This would replace the use by the Indian Airlines of the International Airport hangers on a rental basis and would cost Rs. 860 crores. The hanger will have all modern equipment facilities and will be able to house wide bodied aircraft like Airbus 3000. It is essential that Madras airport should be provided also with full repair and maintenance facilities so that national and international carriers do not have to wait for parts to be flown in from Bombay.

Housing

The state government's construction undertaking reports a positive performance in 1990-91 recording a net surplus of Rs. 5 919 crores as against the depressing deficit of the previous 487 lakhs, the deficit being Rs. 15.07 crore in 1986-87 rising to Rs. 54 31 crore in 1987-88, Rs. 14.45 crores in 1988-89 and spurting again to Rs. 51.87 crores. This report made by the government study relates to the Tamil Nadu Adi Dravidar Housing and Development Corporation and Tamil Nadu State Construction Corporation. The deficit of the Adi Dravidar Corporation is understandable but not that of the other companies serving the middle income and higher income groups. The combined turnovers of the Corporation are rising from Rs. 840 35 crores in 1986 87 to Rs. 1852.63 crores in

1990-91. The question raised by the work of the other Corporation is whether the state government should be in the business of house building except for the really poor and whether it should not leave construction to the private sector, In particular should these government companies take up work abandoned by contractors?

DA

The government in late May announced the grant of an additional instalment of DA to its employees on par with the Union employees. The question that is raised-not just for Tamil Nadu but for the country as a whole is the rationale for compensating government employees and those working in the organised sector for every price rise. The question is related to two questions - one a question of social equity and the other on the economic front. While the vast majority of workers - the landless agricultural labourers and the small self employed in the informal sector - have no compensation from inflation and rising prices, should limited group have the facility. The economic question is that every increase of DA injects so many thousand crores of rupees into the economy and fuels further inflation. The DA is thus both a consequence and of a cause of inflation. It is a case of the tail wagging the dog. Should not this vicious circle be broken soon?

National

Plan

The major event in regard to the VIII Plan was the approval of the Plan for 1992-97 at Rs 7,98,000 crores, with the public sector outlay at Rs. 4,34,000 crores (45 per cent of the total outlay) by the National Development Council at its meeting on May 21 & 22. The outline of the Plan have been set forth in earlier issues of the Bulletin, the only change being the increase in the Public Sector outlay by Rs. 34,000 crores which sent up its share from 43.2 per cent to 45 per cent. The growth rate has been fixed at 5.6 per cent for the Plan which seems high in light of the recession, austerity and structural adjustment through which we are passing. But given the fact that the latest RBI Report on Currency and Finance for 1990-91 forecasts GDP to grow at 2.5 per cent in 1991-92, the 5.6 per cent may not be unattainable. The real problems are that the monsoon this year will be below normal, and reports on drought conditions in various parts of the country are being received, that manufacturing has declined by 2.5 per cent and industrial production by 0.9 per cent during the first 10 months of 1991-92 and the persisting high inflation rate at 12-13 per cent - these problems are the real obstacles to the Plan. The Plan has always been an indicative one, as it functions in a mixed economy, but this Plan is really indicative that it refers to only 45 per cent of the total outlay and its effectiveness will depend on how closely it programmes this amount and monitors its implementation. To sustain the growth rate of 5.6 per cent, the 21.6 per cent assumed savings rate is not high, but this will de attained only if the governments, dissaving comes down from 2.3 per cent of GDP to 1.1 per cent, calling for some serious cuts and in some cases belt tightening. Similarly the high savings rate assumes high surpluses from the public sector, which call for a radical change of policies. Parallel to the reduction of budget support to the public sector, the budget support to infrastructure and social sectors will be increased from 70 per cent in the VII Plan to 80 per cent in the VIII Plan. This is good news for the

soft sectors of education, health, family planning, and the call to them is to spend the increased resources effectively. The growth in the Plan will be a product not of increased investments as in the past, but of improved efficiency of investment in both the public and private sector. Will this happen? The question is raised because the crucial infrastructure of power as noted earlier is likely to be in short supply as well as the other decisive element, Crude oil. Without these, investments cannot produce efficient results and so every effort should be made to improve the power and crude oil sector. On the question of resources, the finance minister presented to NDC an austere menu comprising scrapping Dearness Allowance in the public sector, keeping the fertiliser subsidy under control, ensuring remunerative pricing of power, irrigation facilities and petroleum products and privatisation of state road undertakings. There is little chance of this menu being accepted, but it is the kind of hard decisions confronting the people and trade unions, along with some means of keeping under some control excessive profits in the private sector and black money generation, which need to be faced squarely. His call to the union and states to increase their BCR, reduce non plan expenditure, raise more revenues and rely less on borrowed funds including small savings is also a well timed and needed call. At the NDC, according to the Deputy Chairman of the Planning Commission, besides endorsing the VIII Plan, i) there was strong pressure from the state to transfer the rural development funds to the states which was not accepted but instead it was agreed that the rural development programme will be restructed and provided flexibility so that states could choose which programme they wish to implement. The present uniformity will be replaced by the flexible method of administration. ii) there was also a demand by states to make the small savings more attractive, against which it was pointed out that this would make the scheme more expensive to the states. iii) there was general agreement that the implementation of the schemes and plan was crucial and for this the administrative machinery needs to be improved and streamlined.

Prices

The rate of inflation in April on the basis of the whole sale price index on a point to point basis was 1 per cent, the index standing at 218.6 during the week ended April 25. There will be cascading effect of the steel price hike, which on May 19 was raised to 115 per cent : then there will be the seasonal rise in foodgrains and other prices and the upward revision of the telecom tariff. The annual rate of inflation computed on the variation in the index was 13.27 per cent on April 18, 13.09 on April 25, 12.7 per cent on May 2, using the provisional index for the current year and the final index for the previous year. But if the provisional index for both years are used, the rate becomes 13 3 per cent. The increase in the consumer price index over the 12 month period ending March 1992, in terms of the index for agricultural labourers was a high 21.9 per cent. It is pointed out that 70 per cent of the nation's work force is engaged in agriculture and related occupations, this is true inflation rate, (and not the subdued wholesale price inflation rate). On top, the wage incomes of the farm workers, and those in the unorganised sector are not indexed to inflation, as pointed out earlier shows the unreality of using the wholesale price index to measure inflation as it affects the majority of workers. The increase of 21.9 per cent till March 1992, comes on top of an increase of 16.6 per cent rise in the previous year ended 1991.

What then is the way out? The government and RBI keep stressing monetary expansion and the fiscal deficit to explain inflation. RBI reports a sharp rise in broad money supply of over 19.5 per cent in 1991-92 over the 14.9 per cent registered in the previous year. The Finance Ministry's computing the data of broad money increased by Rs. 51,709 crores (19.5 per cent) between March 31, 1991 and March 20. 1992 shows that this run away inflation should be arrested. Accordingly the rate of growth in net RBI credit to the government has been brought down from last year's 20.1 per cent to 12 per cent - but even so inflation continues on its inexorable way. And the disturbing part of the inflation is that the index of food articles price during the first 2 week rose by 0.97 per cent (against 0.57 per cent last year), including the sharp increase of 14.75 per cent for fruits and vegetables. Action to hold back inflation by the government is to reduce the various deficits - budget and fiscal and RBI to reduce money supply. But this is also slowing down industrial growth and there is talk of inflation and stagflation. So there has to be multipronged attack on inflation - to increase the supply of food articles and to reduce credit and money supply simultaneously.

Budget

On May 6, Parliament approved the Finance Bill for 1992-93. Its highlights are : i) responding to middle class demand, income tax deduction under 80L restored with a ceiling of Rs. 7000 : ii) under section 88, ceiling on investment level increased by Rs. 10,000 to Rs. 60 000 crores; iii) within the overall ceiling of Rs. 60,000 a sub ceiling of Rs. 10,000 for equity linked schemes : iv) preemptive taxation for small traders expanded to include tailors, typewriting, photocopying, repair and laundry services and eating places; v) the proviso that people opting for pre-emptive taxation will not have other sources of income charted to tax; vi) persons having taxable income from other sources not exceeding Rs 5000 a month eligible for opting for the new scheme; vii) tax rate of firms, associations and bodies cut from 40 to 30 per cent; viii) for venture capital companies concessional rate of 20 per cent proposed; ix) to help small firms 100 per cent deduction of partners' salary upto Rs. 50,000; x) tax reforms committee to examine procedures for direct tax. The finance minister announced further direct and indirect tax concessions of Rs. 602 crores, comprising restoration of 80L tax deduction referred to above, reduction of the long term capital gains tax on firms and venture capital companies, a 50 reduction in gold import duty from Rs. 450 to Rs. 220 per 10 grams, and other tax concessions referred to under highlights. Lok Sabha was able to examine and approve the demands of only 11 ministries and so guillotine was applied to grants for 33 ministers and departments and 6 union territories, which means that Parliament approved Rs. 2,33,398.91 crores at one - go in 10 minutes. This meant that important ministries like Defence, once more escaped scrutiny and key ministries like communication and tourism, social welfare and health and family welfare were not discussed. The telecom tariff announced by the Minister of Communication soon after raised trunk call charges, placed limit on duration of phone calls, made call to peripheral areas cheaper and provided group dialling facility in rural areas.

Stock Exchange

In May the major event was the transfer of large funds - varying from Rs. 2000 to Rs. 4000 crores - to Mr. Harshad Mehta for share purchases in which several banks including SBI, National Housing Bank, the United Commercial Bank and others were involved. This led to the spectacular rise of the Bombay Stock Exchange index in the first 3 months of 1992 and the decline by 222 points on a Wednesday on top of Tuesday's record rise of 530 points. The run away boom was covered by adulterated liquidity. Money was 'created' in the financial system with massive issues of Bankers Receipts in support of fictitious transactions in securities, pushing up share prices. The government announced in Parliament that CBI has been ordered to investigate the involvement of the State Bank of India, UCB, NHB in the stock market scam. But it should also enquire into the role or non role of the finance ministry and RBI. It is pointed out that the 3 institutions involved - the stock exchange - exbureaucrats whose incompetence in not detecting the growing divergence between the financial sector and the real economy, exposed their incompetence and brought down the prestige of technocratic rule. Now what is needed is: a) the money that has been swindled will have to be identified and returned to the banks, b) the market should be allowed to liquidate the speculative positions built with bad money and c) the guilty should be punished.

Economy

The most serious development in May for the economy of widely reported drought conditions prevalant and spreading in several states - the worst hit being Gujarat, Maharashtra, Rajasthan, MP, Kerala, Karnataka, 2 districts in Orissa and parts of Tamil Nadu where the water scarcity was earlier noted. Cherrapunji which is noted for receiving the highest rainfall in the world is now facing an acute water crisis due to loss of forest cover. What has triggered the drought is the erratic south - west monsoon with its effect on the kharif crop which will be 5-6 million tonnes short this year. Also Gujarat's oilseed and Kerala's plantation crops have suffered damage. This shows the gaps in our development strategy whenever a partial failure of the monsoon destabilised over agriculture and pushed people to the state of deprivation. This also shows that official claims that agriculture has been insulated from the vagaries of the monsoon and that potable drinking water has been provided to all but a few habitations are false. The states who have been hit have asked for further relief over and above what has been available to them from the Calamity Relief Fund - 4 states - Gujarat, Maharashtra, MP and Karnataka - have asked for Rs. 1710 crores. Here advance release of funds - advances even from next year's relief fund can help. But the amount should be raised to a more rèalistic level than the present Rs. 804 crores. Here a plea is made again for a review and restructuring of the drought relief programme both to plug its leaks and help it create durable assets. Basically it is adequate and effective land and water management policies which will help the country deal with droughts effectively. In May, a number of studies on the economy were published. RBI's report on Currency and Finance fot 1990-91 estimates that GDP growth in 1991-92 will be 2 5 per cent, agriculture a 2.6 per cent growth, food grains at 171.1-172.6 million tonnes. During the first quarter of 1991-92 industrial production declined by 0.9 per cent, with a 2.7 per cent decline in manufacture. The stagnation in the industrial

sector is attributed to import compression measures. The report however is an indictment on the government's anti-inflation, anti-deficit policy - on its fiscal monetary policies. For instance fiscal policy pursued surreptitiously brought down RBI net credit to government only in the last month of the financial year. The Asian Development Bank presents an optimistic picture of Indian economy for the next 2 years, forecasting a growth of 4.3 per cent to 4 8 per cent and states that with the financial sector reforms and larger foreign investment inflows the economy will be looking up. A World Bank report, Poverty Reduction: a handbook and operational directive, states that growth in the industrial employment is a key priority to future poverty reduction in India, as agricultural growth will be insufficient to absorb all potential new entries into the rural labour market. It further states that the first priority in India should be creating employment and improving the labour market by removing anti-employment and protectionist trends in the industrial sector, easing restrictions, employment, restructuring codes and eliminating small business protection schemes that constrain growth. That is its basic bias. Another World Bank study on India's agricultural subsidies criticises India for spending so heavily on such subsidies which have benefited the wealthier and agriculturally advanced regions and large farms rather than the needy ones. It cites the case of irrigation in Punjab and shows that Punjab received benefit of Rs. 1027 on gross cropped area on an average in 1980-87 compared with an all India average of Rs 511 per hectare. It repeats the above Bank study in stating that agricultural growth will be insufficient to absorb all new entrants into the rural labour force. An Indian study on poverty and planning in India speaks of its concern of low productivity spreading and advocates professional management and free and equitable competition between the public and private sector and using technology to spread knowledge and information to any one needing it and not be a monopoly of the elite. These are the elements which our planning should embody. Finally there is a happy convergence from Pakistan, the 1992 Human Development Report on the imperative need for "India and Pakistan to freeze their military expenditures at its current levels during the 1990s, they could reap a potential peace dividend of $50 billion during the current decade, enough to put all their children in schools, provide primary health care and clean drinking water to every one and banish malnutrition by 2000. The Pakistan opposition leader also made this plea in her National Assembly. On May 29, the government issued an ordinance abolishing the capital issues coutrol act of 1947, which abolishes the office of the Controller of Capital issues. This is forecast in the budget speech. The office becomes redundant with SEBI having statutory power covering all aspects of the securities and share market.

Industry

Industrial production during April 1991 - January 1992 declined by 0.9 per cent, according to IIP index. The January 1992 index was -0.4 per cent compared to 1991 January. So using the IIP data for the period upto December 1991 and the quick estimates for January 1992, the index stands at 203.6 which is - 0.9 per cent referred to earlier. The upsetting factor is that the continuing decline in the industrial index month by month during 1991-92. There was a marginal improvement of the Industrial performance, when the just released IIP index for February stood at 229 4 which was

plus 3.4 per cent as compared to February 1991. Taking this performance into account, IIP states that for the first 11 months the industrial growth index works out to 206.2 which is -0.4 per cent compared to the corresponding period in 1991-92. The Planning Commission in its assessment for industrial development during the VIII Plan estimates that capital goods, electronics and jute industries will be adversely affected. The capital goods sector will be hit by the freedom given to entrepreneurs to select and import capital equipment and technologies on the one hand and its inability to meet global competition, on the other. In time, the leading capital goods manufacturers will update their products and become suppliers of world class capital goods. Similarly the opening up of the economy will lead to restructuring the entire electronics industry, including closure of a number of sub economic units which are engaged primarily in screw driver technology. In time, there will be consolidation and amalgamations of units which along with increased tie ups with foreign firms will provide a good basis for the sustained development of the industry. The jute industry is resting on government orders and has a bleak future unless it takes up modernisation. Similarly with low capacity use, poor productivity, inadequate sales, long delivery period and high production costs, the shipbuilding industry is moribund, with the ship repairing industry which has potential to meet the growing demands and earn foreign exchange. The petro chemical industry which has been delicensed will grow as taxes on it are reduced. The fertiliser industry in effect will be bypassed by the economic liberalisation against the control on its inputs and prices. On the other hand, the the Planning Commission states that cement, sugar, textiles and steel industries are poised to do well. The cement industry is internationally competitive and will grow in both production and exports. With the focus on increasing the per hectare yield of sugarcane, the sugar industry will be expanding a major restructuring with power looms in the lead. Several 100 per cent EOUs in modernised composite units have come up and this is a healthy trend. But the outlook for handlooms is not promising. The Department of Programme Implementation calls attention to the escalating costs of industry - 307 projects that it has monitored have increased their costs by 34.9 per cent and 177 of these projects are behind schedule. The government reports to Parliament that RBI have approved 384 foreign investment proposals involving direct foreign investment of Rs. 1256 89 crores, which is a 12 fold increase over the previous year's approvals. The Small Industries Development Bank of India (SIDBI) was established and became operational on April 2, 1990 and is functioning through its head office in Lucknow and a network of 5 regional and 21 branch offices. In its first year 1990-91, it provided Rs. 2823.8 crores as sanction to the small scale units, which was 35.3 per cent higher than the previous year, making the cumulative long term credit Rs. 5343 crores and working capital of Rs. 1544 crores. For the 27,17,880 units listed by RBI this is totally inadequate and needs to be stepped up quickly. SIDBI has also initiated steps to hasten the pace of rehabilitation of sick units but here the coverage is small and the pace is slow. Both needs to be increased. On individual industries DOE reports a negative growth rate, recession in the television market, and a drop in production of main frame computers in 1991, when the industry recorded a decline of 5 per cent. In the fertiliser industry, manufacturers are forming a cartel for the import of

ammonia and phosphrous acid in the second half of 1992. The Planning Commission reports that it has approved a plan outlay of Rs. 1234 crores for 1992-93 for the fertiliser sector in the Department of Fertilisers.

Public Sector Enterprises

Reports on the performance of the Public Sector units are unsatisfactory. The Department of Heavy Industry reports that of the 49 PSUs, 27 losing units might wipe off the Rs. 285 crores profits from the remaining 22 units in 1991-92. These 49 units which projected to make a small profit of Rs. 14 crores in 1991-92 and in 1991-92 and in 1992-93 their losses will be a high 173.31 crores. The shares of 5 public sector units - BHEL, HMT, Andrew Yule, Hindustan Cables and HPF - have been allotted to the financial Institutions. This process of disinvestment needs to be extended to chronically loss making units. The overall financial performance of the 183 enterprises was Rs. 356 8 crores in 1991-92 compared to the Rs. 4811.28 crores in 1990-91. 85 of them earned a net profit of Rs. 2457.20 crores, while 98 units incurred a net loss of Rs. 21101.01 crores which was an increase of Rs. 103.83 crores over that of the previous year. Of the 21 sector groups 9 producing steel, minerals and metals, power, ferrous, chemicals, and pharmaceuticals and telecom services have shown improvement during the first half of the current year, while seven sectors - coal petroleum, heavy engines medium and light energy, consumer goods, textiles and financial crisis record deterioration. The Annnal Plan for 1991-92 envisages a total public sector outlay of Rs. 72,313 crores against the previous year's outlay of Rs. 64,707 crores implying a stepping up of 11.7 per cent. The contribution of public enterprises to the plan is estimated at Rs 14,956 crores (union Rs. 16084 crores states - Rs. 1128 crores) which is not satisfactory. The government states that it is offering a part of equity in 30 public sector units to employees as part of its disinvestment policy under which so far 8 per cent of government holding in 30 PSUs at a total cost of Rs. 3038 crores have been transferred. The offer of equity to its workers is a welcome step. A regrettable factor is that the Comptroller and Auditor General reports that the accounts of 85 government units contained errors of under statement of losses of Rs. 130.23 crores by 29 compared in 1989-90 on top of the previous year's Rs. 100.87 crores by 18 of them. There was over statement of profits of Rs. 5591 crores by 36 units and understatement of profits of Rs. 81.49 crores by 23 companies. There is no excuse for these errors of ommission and commission as they make the presentation of accounts to Parliament a futile and unreliable exercise.

National Production Front

Steel

The Ministry of Steel estimated that the liberalisation measures will reduce the current steel demand - supply gap of 1 8 million tonnes to 0.91 million tonnes by the end of the VIII Plan, 1996-97, with secondary producers doubling their production to reduce the gap. Their output will increase from the current 6.27 million tonnes to 11.03 million tonnes at Plan end, while the main producers will increase their production from the present 8.3 million tonnes to 13.06 million tonnes - Vishakpatnam steel contributing the most increase from the current

395,000 tonnes to 2.16 million tonnes by 1996-97, Bokaro and TISCO increasing by 1 million tonnes each. The Caparo group, London, headed by Swaraj Paul expects the 12,000 crore Daitari steel plant in the Cuttack district to begin commercial production at the end of 1996, SAIL announces that its energy conservation efforts in 1991-92 resulted in a saving of Rs. 63 crores. This has important lessons for all steel plants in energy consumption per tonne of crude steel. Further, SAIL facing the 60 per cent power cut in Karnataka, is planning to participate in Karnataka Power Corporation's hydro power in order to ensure 35 MW power for the Viswesvaraya iron and steel plant at Bhadravati. Thus side by side with expanding production, various means of saving energy are being explored, particularly by the large steel producers.

Crude

With the declining domestic production and the rising cost of imported crude and petroleum products (Russia has decided to implement its 1992 trade protocol with India in supplying 4 million tonnes of crude plus some kerosene and diesel valued at $650 million), the Planning Commission's advise and warning to monitor the demand for petroleum products should be taken seriously and put into effect immediately. The commission estimates that the balance life of oil and gas reserves in the country at less than 25 years, so that an uncontrolled increase in demand for petroleum products will make the country's balance of payments prospects an impossible one. The commission estimates that at the present rate of consumption, the demand for petroleum products will be 81 million tonnes in 1996-97 and 125 million tonnes in 2001. The higher oil imports to meet this demand will reduce availability of resources for investment in the post VIII Plan period. Hence it is necessary to i) expand existing refinery capacity, ii) adopt conservative measures, iii) pay attention to demand management and iv) develop substitutes. In this last item Natural gas is an important substitute and should be used in fertilisers, and petro chemicals, power generation and for extraction of LPG. These will save consumption of naptha in fertilisers and petro chemicals sector, furnace oil in the power sector and kerosene in the domestic sector. In the transport sector, compressed natural gas could substitute for diesel and petrol. The commission estimates that with the development of western offshore oil, crude supply will be 50 million tonnes in 1996-97, which will involve as import of over 30 million tonnes.

Coal

The coal scenario is not clear. On the one hand government informs Parliament of mounting annual coal production - 211.73 million tonnes in 1990-91, 229.29 million tonnes in 1991-92, and the target for 1992-93 which has been fixed at 238.20 million tonnes A CIL document, 'knowledge of insiders' states that Coal India which meets 68 per cent of the country's coal requirement has come out of the red in 1991-92 by paying Rs. 53 crores to the government and repaid Rs. 451 crores by way of loans to the government. The document says that a reduction of 5 per cent in unit cost of production has been effected and collection of coal sale during the year increased by 15 per cent because of the cash and carry principle. At the same time, the union minister for coal speaking at a CIL function states that there is need

for a time bound programme to reduce the high level of coal sales dues of Rs. 11,000 crores, and to bring down coal stocks and inventory of stores. He has called attention to the parlous situation of underground mining in which the government has invested a huge Rs. 4500 crores in machinery since the 70s but which hardly produced 30 per cent of the annual output and incurring a loss of Rs. 900 crores in 1990-91 and an estimated Rs. 1000 crores in 1991-92. This calls for not only an arresting of the trend in increasing of wage rates and for absorbing the DA by matching productivity improvement, a strict control over manpower which will have to be redeployed and retrained but also to replace the obsolete underground coal production technology used, by modern techniques and methods. The minister says that in hard coal production India at 4.80 per cent stands second to China's 6.13 per cent. This shows India is a poor second and every effort should be made not to pass around optimistic and gullible reports of achievements, but to make coal mining really productive and lucrative, particularly in regard to underground mining.

Non ferrous

Zinc has both plus and minus sides. On the plus side it reports the highest monthly production in March of zinc (12866 tonnes) and lead (5188 tonnes) and for 1991-92 a total of 85.509 tonnes of zinc and 32,730 tonnes of lead It plans a 40 per cent increase in the current year, 1992-93, at 1.67 lakhs (140,000 tonnes of zinc and 55,000 of zinc). It also reports that it has started exporting zinc (upto now India has been an importer), receiving export order of 750 tonnes from Bangladesh, Pakistan and UAE. In lead the country will become self sufficient this year. The negative side is that the report of the Comptroller and Auditor General pulls up Hindustan Zinc (HZL) for time and cost over runs. For instance the cost of Balara mine project increased from Rs. 1.161 lakh tonnes in September 1973 to Rs. 2.167 lakhs in October 1977 and there was a time over run of 10 months. Similarly the Rajputana mine which did not have a proper engineering study increased its cost from 44.75 crores in February 1977 to Rs. 78.30 crores in 1984. It also calls attention to the fact that in most of the mines and smelters, the targets fixed are below capacity. These negative elements need immediate corrective action.

Agricultural Production

Agricultural production is in the doldrums. The Department of Meteorology confirms that the south west monsoon will be late and below average. The Department of Agriculture points out that this second IMD bulletin does not refer to the "sluggishness" of the monsoon but to its late arrival. But the lateness of the monsoon could go along with a 90 to 95 per cent rainfall during the monsoon. This along with the use of short duration varieties for kharif which farmers are preparing themselves for could mean that the kharif crop could be good. The 1991 kharif production was 94.2 million tonnes against the 99.7 million tonnes in 1990. Hence the 1991 foodgrain production is placed at 171-173 million tonnes about 4 million tonnes less than the output in 1989-1990 The 1992 kharif is feared also to be sub-optimal, which the ministry attributes to the delay in deciding on the fertilisers subsidy. The aberrant rainfall if it is repeated again this year, will like last year lead to a fall in foodgrains production.

The parliamentary committee which is studying the fertiliser situation and subsidy and which was to report in mid February and is now expected to present its report at the end of the month, May. There are strongly conflicting views presented to it. The Union government and Punjab seem to be hopeful to achieving the wheat procurement target of 55 million tonnes this year. There are problems such as the week-long protest observed by the farmers in Punjab in early May. At the end of the protest week the government reports that it has processed 35.36 lakh tonnes of wheat, paying the farmers concerned a bonus of Rs. 25 per quintal. A crop insurance scheme, covering all farmers, and all crops against all risks is to be launched in one district in each state in addition to the existing computerised crop insurance scheme (CCIS) which covers only a few crops and offers a maximum risk coverage of Rs. 10,000. The new scheme, CCS, will offer an indemnity payment much higher than the premium collected from the farmers; this CCS is timely. A World Bank report on agriculture in India states that doubling food production by 2000 is urgent and can be achieved by maintaining past rates of crop yields but calls for a 4 fold increase in fertilisers applications. Since gains in foodgrain production increase the risk of soil degradation, misuse of particular spill overs from chemical applications and excessive draw down of water, can be countered by integrated pest management, minimum tillage, agro forestry, integrated crop and live stock management and soil enriching crop rotations to reduce land degradation and increase yields. This is the case for farmers literacy and education and social change.

Foreign Trade and B O P

In May there was both good news and bad news in regard to foreign trade. The good news was that the trade gap for 1991-92 was the lowest since 1980 at $1 billion. The bad news is that it comes through a decline in exports plus an even sharper fall in imports. The fall in exports was in the main part due to the sharp decline in Indian sales to the former Soviet Union. Exports to hard currency areas increased by 6.34 per cent, which was much lower than 14.7 per cent rise in 1990-91 and 10.8 per cent in 1989-90. Even so the changes in the world economy has not helped Indian exports - many industrial countries are slowly recovering from recession, Russia and the other countries of the former Soviet Union are beginning to import from India. There is a chance of a recovery in 1992-93. Without a large export recovery, the whole reform package would collapse, as the stabilisation of the Rupee exchange rate requires an inflow of hard currency. Such Rupee exchange stabilisation is the only means of preventing inflation and encouraging exporters to bring in their earning and not discourage export intensive imports. Did the fall in world price last year depress the value of both imports and exports, so that import compression was not so severe and export growth was not so poor as earlier imagined? To boost exports in the VIII Plan there is to be a further pruning of nagative lists of imports and exports (most raw materials and components have been removed), and a gradual reduction in both the level and dispersion of tariff rates. This should include as a priority reducing the rates on capital goods imports to boost exports, The partial convertibility of the rupee should be so handled that exporters are allowed to import at the official exchange rate or they should be allowed to convert their entire export earning, at the market rate as the EDU are able to. This would counter the negative 1991-92

export trend and further reduce its trade deficit from the 1.61 billion crores in 1991-92 (down from $5.93 billion in 1990-91) and boost the use of the special licenses for exports issued after March 1. Also the group license and transparent procedure announced in May to push up exports carry a number of items like motor vehicles, aircraft and delegation of powers to regional licensing authorities should expand exports. On specific items, the government reports that export of traditional goods have shown an impressive increase from Rs. 9256 crores in 1990-91 to Rs. 10,090 crores in 1991-92. Silk goods exports rose by 53 per cent and Rs. 675.56 crores in 1991-92. Between March and May 1992, 5 tonnes of gold were imported under the new scheme. Textiles exports are expected to touch Rs. 2500 crores by 1994-95 against Rs. 12,000 crores in 1991-92. The US to protect its intellectual property rights under Special 301 suspended duty free treatment to Indian pharmaceuticals and chemicals given under the generalised system of trade preferences. The US wants India to open up its domestic market for US textiles. It has said that an increase in its quotas for ready made garments from India will hinge on the market access available to US textiles industry. The US is thus taking a series of extreme protectionist measures while it wants other countries like India, China, Japan and the EC to open up their markets. This does not make sense for its trade and for world trade The government has given a major relief to garment exporters who do not need to give bank guarantee or make earnest money deposit with the Apprai al Export Promotion Council Now a legal undertaking is adequate.

Loans and Aid

World Bank and IDA announced in May a loan of $153 and IDA credit of $153 for the 365.3 million Second National Highways project. The World Bank has asked for partial privatisation of the railways manufacturing units as a condition for making a loan of $300 million for the import of rails, special steel, wheels, axles and other components needed by it. The World Bank is also making a loan of Rs. 670 crores to improve the technical, financial and staff positions of state pollution control boards. The World Bank announced in May two changes in its lending programmes to India. It announced a loan of $200 million for the National Power Corporation, as it has so far not agreed to make any loans to the power sector until its financial viability is improved. It also announces postponing the processing of the $400 million structural adjustment loan, till the details of the reform programme are available, which means that its review of the programme last month did not indicate a satisfactory status. The Asian Development Bank announced that its commitment of loan to India this year will be $1 billion, starting with the assurance of receiving assistance to meet its immediate commitment. ADB also announced in May that it is setting up a credit rating agency in India in order to identify and eliminate institutional gaps and deficiencies in the capital market. The Canadian government has stated that its loans of Rs 514.89 for Chemera Stage II is postponed because the Canadian government states that it does not have for the moment these funds. IDBI proposes to raise 350 million from the World capital market to help Indian companies finance their foreign currency loans. It will be noted that in May the multilateral agencies were not only making many loans but were getting increasingly involved in the country's economic policies. This should be watched.

International

World Economy

Unlike IMF's forecast that the industrial economies will grow by 1.3 per cent in 1991-92 and 2.8 per cent in 1992, in fact they grow by 0·8 per cent in 1991. In its latest World Economic Outlook published in Aptil 1992, IMF has reduced its 1992 forecast of 1.8 per cent and postponed to 1993 the long awaited rebound. The industrial economy output in 1992 has been reduced to $240 billion lower than its April 1991 forecast. By contrast, IMFs forecast for the developing country has been shown up to be low side, as these countries grew by 3.3 per cent in 1991, and are expected to grow by 6.7 per cent in 1992 and 5.4 per cent in 1993, mainly due to the recovery of Latin America and the Middle east. The third world growth depends on the fortunes of the well to do countries, whom IMF forecasts will be growing by 3.3 per cent, despite Japan's share prices crash. The 1993 rebound depends on the slow down in Japan and Germany being reversed and the Uruguay round being successfully completed. ADB sees the gap between saving and investment increasing in the 90s and the competition for exports building up. It says that as ancient barriers and fears had increased inter-regional trade and investment will provide developing countries with more markets for exports and new sources of finances for development. One only hopes that its forecast comes true.

World Development Report

The World Bank's world development report 1992 is both unique and sets forth the Bank's perspective on the environment as calling on the industrial countries to give the highest priority to ensure protection which will ensure an eco friendly industrial growth. The report points out that the big issues are not global warming and climate change or over consumption flowing out of under development. It prescribes more ecologically friendly development which will lead to better living standards, less pollution, less malnutrition, ill health and ignorance. It says that illiteracy and ill health are the biggest causes of environmental degradation and on this the industrial world must help the developing world. It argues that top priority needs to be given to issues like access to clean drinking water and sanitation which have not been emphasised by the wide ranging debate on the environment and environment policy because they do not stir passion like high dams, or nuclear power plants or deforestation of the Amazon. Yet they affect hundreds of millions and should be at the top of the environmental agenda. The North should provide the South with funds for global issues like the ozone layer and green house effect as a clean payment unrelated to aid, since action on these by the South will be also benefit the North. Further the intellectual framework of the Report (WDR 1992) departs from the traditional Bank's thesis of the central place of the market, and goes into areas where state interventions and incentives are needed and should be continued. The developed countries should argue at Rio that priority should be given to poverty alleviation and the improvement of the Quality of life. Solution to the global problems like the green house effect should be funded by the rich countries who have caused the problem. Every developing country has more pressing problems, like soil erosion, salination, and polluted water and air, while foreign help for these would be welcome, they should be financed by the developing countries themselves especi-

ally as they will also improve economic growth and welfare. The report emphasises the complementarity between good economic and good environmental policy. It convincingly argues against the environmentalist view that economic growth leads to environmental degradation and that it is possible to produce growth without environmental degradation. Where there is a conflict between growth and the environment, the report argues for cost benefit and cost effectiveness analysis to make the best choices which will recognise and reconcile the claims of economic growth and environmental constraints, leading on to sustainable development North-South issues will dominate the Rio meeting, but the most important environmental issues are national and must be tackled at the national level with its own funds. And most important are the policies and project that alleviate poverty, improve literacy and health and so set in motion the process of sustainable growth. The report has quantified the investment for environmental protection including, soil conservation, increased investment in sanitation, afforestation, and reduction of poisonous and polluting emissions at around $75 billions by the end of the decade. The additional income generated in developing countries by such investment will fully be compensated. A particularly striking system in the report is that poor farmers should be given property rights to the lands they till The report also draws attention to the urgency for prggressive reduction of chlorofluro carbon (CFC) emission, which have been playing havoc with the ozone cover. This is not easy as CFC is based on 5000 different applications to produce goods and services valued at $30 billion annually. Some start has been made in this insustainability CFC by water based and decreasing fluid in the electronics industry and hydro carbon. Of special interest to India and other developing centres is the finding that natural gas is the cleanest and most abundant energy source. India should quickly develop this source as its principal energy producer. While we are going in for globalisation, the WDR 1992 reminds us of the importance of the environmental factor in the efforts to accelerate the country's industrial growth and economic development. This is particularly important as we are emphasising FDR and inviting multinationalism. We need to be sure that they do not use technologies not allowed in their own countries and which could be used here to make quick and easy profits. These need to be built into our emerging policies and plans and programmes so that we can grow and grow in a sustainable manner.

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II. Agricultural Development in Tamil Nadu

Paddy and other crops

May recorded two major events in the life and work of the state's paddy farmers First, the samba season procurement from the farmers mainly in the monopoly procurement area of Thanjavur district and parts of Tiruchi and South Arcot which crossed 12 lakhs tonnes by the end of the month was an indication that the farmers in the delta were able to secure a higher paddy yield. The mono

poly procurement is due to end on June 30, but it may be extended till end of September which means that farmers holding stock biding the June 30 deadline; will then come forward to deposit their stocks with the Civil Supplies Corporation as they will not be in a position to hold on to the stocks for the longer period. Even without this unloading of the stocks by farmers. this year procurement could end with 12.3 to 13 tonnes. This also shows that the PDS which has now an off take of 1.75 lakh tonnes can rely on the government stocks this year to meet the offtake demand, as the union government may not be able to increase its monthly quota to Tamil Nadu which is around 60,000 tonnes, and AP with its low procurement not being able to provide for additional rice purchases from Tamil Nadu. In any case as the PDS was able to meet all its demand last year when its procurement was 9 lakh tonnes, now with 12 lakh tonnes in hand, it can meet an increased offtake for the next 4 months to 1.5 lakh tonnes. The offtake during April was a low 1.1 lakh tonnes. The other event affecting the work of the state farmers is the decision of the government to open Mettur on the due date, June 12, which will be done after 8 years when Mettur either could not be opened or opened only 4-6 weeks after the due date. The Mettur water which will begin to flow on June 12 will meet the farmers, 3 months duration kuruvai crop. For this, the strategy relies on the Karnataka government carrying out the water Tribunal's interim decision. This is extremely doubtful and so the strategy should also provide for the 97.55 ft of water in Mettur at the end of May which will normally last for 50 days, should by economic water use and management by the farmers be stretched out to about 50 per cent more of their time. The farmers will then have to accept also the turn system which they are used to, as they will need the water till September end. The curious fact is that the cauvery has now water flowing well above the Tribunal's interim award which ranges between 2.01 to 2.51 tmc from January to May and the prescribed amounts are 10.16 tmc in June, 42.75 tmc in July and 54.72 tmc in August falling to 29.36 tmc in September, 30.17 tmc in October, 16.00 tmc in November and 10.33 tmc in December. The area covered by the farmers for kuruvai is 5-6 lakh acres in Thanjavur and Tiruchy districts. The farmers have started making preparation for raising the kuruvai paddy. Kuruvai nurseries have been raised, using water from filter points, along with community nurseries which are becoming popular. The Agricultural Department on its side is readying itself to supply the farmers with seeds, fertilisers and pesticides. The district cooperative central banks in the districts of Tiruchy, Thanjavur Nagapatinam, Quaid-e-Milleth and Pudukottai are also gearing themselves to provide the farmers short term crop loans. Farmers growing cotton. groundnut and sugarcane report normal growing conditions and are expecting the onset of the southwest monsoon to augment their water supplies espially in the sugarcane areas.

Research results

In May 37 research reports were recorded. Of these attention is called to five groups of reports. The first group relates to rice paddy. Annamalai University reports that deep bore wells water which was saline used by Kuruvai farmers in Thanjavur to supplement the meagre cauvery flows, and while gypsum application can ameliorate the short term effects on micro flora and soil

enzimes, in the long run borewell water adversely affects the soil. The kuruvai farmers are advised not to use it. Second, the same institutes show that weed is in competition with direct sown rice and advises that CR 1009 is better for such direct sown cultivation, that the critical period for the weed competition is the first 40 days after emergence and the crop should be kept weed free for the first 50 days. Third, the Regional Agricultural Research Station in Kerala has released a new high yielding medium duration variety of rice, Ptb 48, for assured water supply areas. Fourth, the National Pulses Research Centre, Vemban reports that as paddy seeds sown directly are subject to moisture stress affecting germination, the seed hardening cost effect techniques where in the seeds are soaked in salt solution and dried should be used. The Central Rice Research Institute (RRI) Cuttack has released 4 new HYV varieties of rice. The lunishru variety is suitable for saline water areas, the santa variety for rain fed upland and the other 2 varieties-adibra and seema-are suitable for growing in shallow lowlands and flood prone areas. A second group to assist fruit and vegetable growing farmers comprises: a) Mahabusbad's Krishi Vigyan Kendra's demonstration that sunflower protection developing rabi with well drained, deep, natural and fertile soils can yield increasing returns : b) Annamalai University's demonstration of how fruit rot and dieback fungi in chilli can be countered using 3 simple steps; c) TNAU Vridachalam station's experiment of what is the optimum fertiliser (urea, superphosphate and muriat of potash) that results in a higher cashew yield: d) TNAU's use of agro wastes to make coirpith compost a good nutrient : e) the Vemban research centres work on the control measures to counter yellow vein mosaic in bhendi. Third and related area the reports on sugarcane and coconut the Pondicherry Krishi Vigyan Kendra demonstrated that modified farms of urea (20 kg NHA) increased cane yield by 10-20 per cent similarly TNAU's Melalathini sugar cane station shows that 3 rows of soyabean between the paired rows of sugarcane is a counter to the early shoot borer which attacks the cane crop : Bhavaninagar's agricultural research station has demonstrated the control measures to eliminate white grut in sugarcane: the Veppakulam coconut research station domonstrates that the use of neem seed powder protects the coconut from black beetle. Fourth, for the fruit growing farmers the Vallonad agricultural college has shown how the granulation disease in sweet orange can be averted by providing optimum irrigation and combined use of chemical fertilisers and farm yard manure; UAS Bangalore demonstrates the means of controlling the stem borer in mango bug, destroying the — affected parts and using chloroform or petrol to kill the germs. TNAU has released a medium sized Jack tree, Palur I; for high density planting: and the horticultural college in Periyakulam shows how through chemical control the tea mosquito bug in guava can be eliminated. Finally for animal husbandry farmers the college of veterinary science, Tirupathy advises using antimosa, anthiomedia and other such drugs to counter snoring diseases in cattle; Kattupakkam's Krishi Vigyan Kendra shows that clam meal is an ideal feed for prawns and means of multiplying them fast. NRCE, Hessan recommends a course of treatment with hyper immune serum plus oral administration of sulfamidine to stop over eating disease in sheep; the sheep research station is Sandiyanullur has worked out a balanced diet of pelleted nutrition for rabbies : and VC & RI Namakkal recommends use of a killo-

vaccine to control Anaplasmatics in sheep.

Plantation crops

The Plantation crops scene in May both at the global and national level is depressing. The *tea* crop is forecast to increase by 1 per cent in 1992 at the international level which is unlikely to be realised. With prolonged drought in South India, the first quarter has recorded a loss of 10 million kgs, with Tamil Nadu recording the sharpest decrease. For the country the first quarter, January to March, recorded a decline to 44.12 million kg from 58.67 million kg in the previous year. Sri Lanka's output has also slowed down and so have that of Kenya and Indonesia. For the second successive year, world tea prices have declined. In India prices fell by 9.8 per cent in the first quarter. With prices in several of the producing countries ruling below costs, there could be a cut back in estate inputs and capital investments which will reduce production in the coming year. On the demand side, a set back is inevitable given the fall in the buying of the ex USSR. Inventories have fallen to low levels and so any spurt in demand will send prices up and that is what producers hope for. In *coffee*, the World price has reached a 17 year low. There is general agreement in all producing countries that there is need for concentrated action to support prices, it is hoped that there meeting at the end of May of leading coffee producers will lead to the basis for a new International Coffee Agreement, which can be finalised at the June meeting leading to agreement on economic clauses to stabilise the coffee market. The Brazilian crop in 1992-93 is likely to be smaller, with the possibility of a firm reduction in 1993-96. Colombo has imposed a 5 per cent cut in payment to growers and Ivory coast the largest producer in Africa facing a cash shortage and so has delayed taking delivery of coffee from growers, Demand for coffee has not fallen but supply and inventories especially of Robusta are high. Now with the Brazilian production decline there is hope of a pick up in prices. On *Rubber* India along with Indonesia and Thailand achieved record rubber production in 1991. During the first quarter of 1992, the International Natural Rubber Organisation reference prices was just at the buffer stock level "must buy". This is due to lower prices of synthetic subtitutes, currency fluctuation and the growing imbalance in supply and demand. In 1991 the European tyre market declined by 7 per cent and the US tyre market by 3 per cent, while Japan witnessed a slack in production and tyre sales. India has now emerged as a rubber exporter. With demand not increasing there is a fear of a further fall in rubber prices. Hence there is gloom in the global rubber scene. There is a special effort to increase rubber production in India and in this connection the World Bank's offer of aid for developing the rubber plantation in Tripura should be noted. There have been some problems in this matter with the Union and Tripura governments in disagreement on the deforestation involved. This should be settled and the plan to open up 24,000 hectares of rubber plantation in the North East region should be pursued. India's exports of rubber is somewhat misleading. What is being exported are some stocks in STC and they were imports for which there was no takers. In 1992-93 the Rubber Board would be increasing the area of replantation and new plantation by 55 per cent and was included in non traditional area. The question is whether it is premature to plan for exports now. In regard to

spices, the performance of pepper and cardamom continues to be disappointing. Infact it was the minor species-coriander, garlic and curry powder which kept the spices front alive. Although India is the largest producer of spices employing 2 million hectares of land, its share is only 25 per cent of the global trade, fetching even a lower proportion of value added at 14 per cent. There have been sharp fluctuations in spice exports and this should be straightened out to meet on a reliable basis the export demand. Again value earned has not kept pace with the export volume and there is need to increase and improve both the volume and productivity of our spices production. There is need to replace the continuous use of low variety, unclaimed holdings, infestation of pests and concentrate on use of improved technology and land and water use. *Cashew* kernel has a high production and export potential but its production falls short of both domestic and export requirement necessitating imports. Cashew products which was 2.95 lakh tonnes in 1990-91 is estimated at 2.50 lakh tonnes in 1991-92. Prolonged winter is stated to have affected the production in Kerala which accounts for nearly half the country's production This is one major reason why the exports depend on imports. The annual earnings from cashew kernal exports have crossed Rs. 41.0 crores, representing nearly 12 per cent of the horticultural and plantation crops foreign exchange earnings. The export potential of cashew kernal is really vast and amounts to extensive exploitation. We should resist the temptation to import raw cashew nut because it is cheaper in the world market and so can import them for re export. We need to expand our production of cashew.

III. Industrial Development in Tamil Nadu

The May record of Tamil Nadu's industrial development had the usual positive and negative features, with the positive ones dominating.

On the positive side there were 14 items to be noted. *First*, an *industrial potential study* by CII of Mayiladuthurai and neighbouring taluks in Nagapattinam, Quaide Millet and Thanjavur district needs noting. The study covering Mayiladuthurai, Sirkali, Taragampadi, Nannilam and Kodaivast in the Nagapattinam Quaid-e Millet district and Kumbakonam and Thiruvadumaruthur taluks in Thanjavur districts recommends 8 projects based on their human and natural resources-the range of the agricultural cammodities, their endowments in its coastline, natural gas, traditional artisan skills, towns and national heritage centres, skilled manpower and research institutions-namely 1) activated carbon based on paddy or coconut husk and shell, 2) bio fertiliser and bio pesticides, 3) rubberised coir, 4) solvent extraction and refining of solvent extraction of oils, 5) sodium silicate with soda ash and paddy husk as raw material and natural gas as fuel, 6) shrimp farming, 7) iodised salt and 8) fruit processing (mango, banana

and guava) and asceptic packaging. The Mayiladuthurai centre has 3 industrially most backward taluks and 2 industrially backward taluks which will be eligible to various state government concessions. *Second,* (except for agriculture and allied activities investments to be referred to under the negative features), *investment in other categories of the state Public Sector Enterprises* recorded growth in 1990-91 over the previous year. The development finance group achieved the highest increase in investment at Rs. 106.47 crores. The review of the 58 state public sector units for 1990-91 presented to the Assembly reports that the number of units declined from 63 in 1988-89 to 58 in 1990-91 with aggregate investments in them increasing from Rs. 1874.11 crores to Rs. 2048.23 crores, with a 20.11 per cent growth, TN Newsprint topping the list. *Third,* in order to counter growth sickness on instruction from the government, the *credit policy of the industrial development corporation* is being tightened to avoid misinvestment of credit. The debt equity ratio which is 1:2 is being changed and SIPCOT and the credit agencies have increased their rate from 1.45 per cent till last year (1990-91) to a hefty 20 per cent. SIPCOT's loans during the year were a little above that of the previous year at Rs. 65 crores. There are however overdues of Rs. 110 crores which is being reduced. *Fourth,* at long last on May 1, the Union announced the clearance of the Rs. 1725 crores *aromatics project* which will generate further investment of Rs. 2000 to Rs. 30000 crores in down stream units. Now MRL & SPIC with the government department should pursue the approval so that there is no delay in the implementation of the project. *Fifth, Morgan Industries* announced the setting up of a plant to manufacture BOPPC basically omate, polypropylene and PVC packaging types and a variety of adhesives for different applications. The company's Rs. 1480 crores project is coming up at SIPCOT Industrial complex. *Sixth,* Tamil Nadu Telecommunication announced that it has obtained the first export order for the cables for Rs. 25 lakhs. This is not much but its importance is that the company has moved into the export field within 3 months of operations. *Seventh,* Tamil Nadu Refineries has commissioned on May 19 its Rs. 12.2 crores fondgraple hexane project. Fond grad is a petroleum solvent used in edible oils, pharmaceuticals, rubber and a wide range of goods. *Eighth, Enfield India* in alliance with Eicher group in Delhi is planning financial restructuring to increase the owned funds of the company in order to increase its manufacturing ability without increasing its indebtedness *Ninth, The Mining activities* of the government report a satisfactory growth in the last 5 years, earning a net surplus of Rs. 10.14 crores in 1990-91. This covers the performance of Tamil Nadu Minerals (TAMIN) and Tamil Nadu Magnesite (TANMAG). TAMIN's return on average investment in 1990-91 was 49.87 per cent. TANMAG in its turn earned a net profit of Rs. 132.34 lakhs for the year. *Tenth,* Poompuhar Shipping, after passing through some difficult year, has started generating surplus in 1989-90 (Rs. 3.25 crores) and 1990-91 Rs. 790 crores. *Eleventh,* in February and March *19 public limited companies and 290 private limited companies* were registered in Tamil Nadu with an aggregate authorised capital of Rs. 4944 lakhs and Rs. 3360 lakhs respectively. *Twelfth,* the government states that it does not rule out the possibility of tapping the private sector for utilising wind energy in a big way. The plan to generate 100 MW of wind energy in the next five

years would involve an investment of Rs. 400 crores for the private sector which is being invited, as the state government does not have access to that kind of money. *Thirteenth, Pandiyan Graphics* has set up a 100 per cent export oriented unit for the production of graphite flakes and powder and has now finalised plans for a joint venture in Sri Lanka with Bogala graphics limited. Finally, the *tourism industry* in alliance with the union and state governments has an approved investment of Rs. 50 crores for setting up hotels. More particularly Rs. 28 crores is being invested in 9 hotels in the state in 1989-92.

There were also some negative developments in the industrial scene in May. *First, in the granite industry area* the constant changes in the policies in granite leasing and exports by the government is hampering the development of the industry. On the one hand there are increasing export oriented units coming up; and on the other hand the constant changes in export policy is making the importers who are heavily reliant on Indian granite look for other sources. For instance, the recent announcement in the assembly by the chief minister on the canalising of granite exports is a blow to the industry, and further no one in government seems to know what this new policy is about and how it is to be operated. There is also a move by the governments of the US and Canada to impose a high customs duty on the import of polished granite, which is mainly from Tamil Nadu, as the two countries wish to encourage their domestic granite industry. The two countries import Rs. 35 crores of granite from Tamil Nadu and other states whose total export in granite is around Rs. 60 crores. Are the problems of the granite industry, responsible for the Tamil Nadu government not acting on its announcement to canalise granite exports? *Second,* and related to above, *Richmond granite Exports* states that it is setting up a project for the manufacture of granite tiles, slabs, ornamental structures and the value added products, using soft mining technology to ensure high quality and accurate dimensions of the rough block. For its plant it has acquired quarries in the rich granite belts of Athur. Krishnagiri, Madurai and Killa Pulliyar. But this also faces the uncertainties of the state's granite policy, *Third, the Eicher* group, to whom reference was made in the earlier positive trend section, has decided not to allocate the Rs. 35 crore project for the main factory of 50HP tractors in Tamil Nadu because our concessions do not match that of MP and Gujarat. Tamil Nadu's sales tax concessions are limited to 50 per cent of the investment, unlike the other states. Hence the factory has been located in Bhopal. The government's claim about the large consession to attract industry (see Vol XXII p127) are not true. *Fourth, 5 Tamil Nadu Public Sector* undertakings which are shown under the miscellaneous group namely the Tamil Nadu Warehousing Corporation, Overseas Manpower Corporation, Pallavan Transport Consultancy Services, TN Ex Servicemen Corporation and TN State Sports Development Corporation have performed poorly showing a deficit every year for the past 5 years. For 1990-91, there is a slight improvement, resulting in a small surplus of Rs. 26.67 lakhs. Fifth, *the state trading bodies* - TN Civil Supplies Corporation and TN State Marketing Corporation - have also performed poorly, showing deficits during the last 5 years - Rs. 19.82 crores in 1987-88, - Rs. 13.88 crores in 1988-89, - Rs. 6.40 crores in 1989-90, -Rs. 13.88 crores in 1990-91 and and - Rs. 14.84 crores in 1991-92. As traders there is no excuse for this poor performance - particularly on the part of

the TN Civil Supplies Corporation. The question arises whether these bodies should be partly or wholly be privatised to avoid this poor performance? *Fifth*, it is regrettable that *no public sector undertakings engaged in agriculture and allied activities* have performed well as seen in their net surplus declining from Rs. 581.59 lakhs in 1989-90 to Rs. 54.91 lakhs in 1990-91. The main units are TN Agro Industries, Forest Plantation, Tea plantation, medical plant, farm and herbal medicine and Aratu rubber. The Tea plantation unit has done the worst. Here again the question of letting out some of these units to the private undertakings and operation should be investigated. *Sixth, Shaw Wallace* announced that it is suspending its agro chemical manufacturing units from June 1 in the state because of its mounting losses. This is the application of the no pay rule to this company's 350 workers. Once more the plus points outweigh the minus points in the industrial scene but the minus points are correctable and should be.

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IV. Education, Science and Health

Educational reforms

The review by the Ramamurthy committee of the National Policy on Education 1986 (NPE 1986) has been processed for the Central Advisory Board of Education by its committee chaired by Janardhana Reddy, AP chief and education minister. As a result there is agreement on the allocation of higher funds for education at 6 per cent of GDP, extension of operation blackboard, the establishment of educational tribunals (fashioned after administrative tribunals) at the national and state levels to resolve educational conflicts, the preparation of a national examination reform framework to serve as a set of guidelines to the examining bodies, acceptance on an all India basis of the plus two stage as part of the school education, the use of Jawahar Rozgar Yojana to make substantial educational facilities available to the STs and SCs, the commitment of union and state government, political parties and their mass organisations, mass media, educational institutions, teachers, students and voluntary organisations to the mass literacy programme, emphasising of post literacy programmes for the neo literates. The Tamil Nadu Rural Students Talents Search (TRUSTS) for the award of scholarship to talented boys and girls in the rural areas has had a good response as 15000 pupils took the test from 21 districts. The first 50 boys and girls are to be selected for scholarships. A negative note is struck by a report on autonomous bodies tabled in the Lok Sabha of the Comptroller and Auditor General has indicted CBSE for granting affiliation to schools without satisfying the conditions laid down. Out of 155 schools test checked, 96 were granted affiliation in default of byelaws, in 18 cases provisional affiliation was granted without inspection, of 191 schools granted permanent affiliation, the pre affiliation conditions were not met and no action was taken to meet post affili-

ation conditions in 51 schools. These serious irregularities should be remedied by the governing board. Following the recommendations of NEP in 1986, the UGC has helped established academic staff colleges - one for each state and several in large states. There are 48 such colleges today, whose aim is to motivate the college teachers, to become innovative and creative and introduce them to the tools of educational technologies. An analysis of the feedback by NEPA show that these colleges have helped to develop the teaching skills of the teachers in higher education. These courses for new teachers and refresher courses for existing teachers have started well. There are problems such as releasing the teachers in a teacher short university situation. UGC has now set up a review committee to look into the funding of the colleges and recommend innovative and research persons needed. In view of the poor showing of the young persons in the country to induce sports, the government has initiated a major exercise to introduce public and private sector units to set up Acadamies in various disciplines of sports There is agreement among many public and private sector units to set up national or regional academies. This needs to be pursued.

Distance education

UGC has decided to set up a distance education council as a first step of overhauling the correspondence education programme of the country. The distance education system is not guided by the UCG or the Indira Gandhi Open University which is not the body to undertake the task. The Council to be set up by UGC should ensure that the distance education programme should not be a pale imitation of the regular university courses and acquires an identity of its own. This programme can meet the growing demand for job oriented courses and for this they have to have innovation and devise curricula and learning methods quite different from the traditional bachelor's or master's degree courses in the regular universities. The Madurai Kamaraj university, which after Delhi University, is the oldest university which devised and operated a good correspondence education programme, is now called upon to introduce distance education programmes in the Gulf countries. This will help the lakhs of non resident Indian students in that region, but is also an important occasion to develop the innovative courses that the programme represents.

Adult education

A startling fact reported by the Comptroller and Auditor General in his report to the Lok Sabha, referred to earlier, is that despite the large volume of funds poured into the literacy programmes, the average number of persons made literate this year is declining. He reports that in 1985-90, Rs. 494 crores was spent on adult literacy programmes, the average annual expenditure is increasing from Rs. 49 crores in 1985-88 to Rs. 89 crores in 1988-89, but the average number made literate declined from 49 lakhs per year in 1985-86 to 44 lakhs in 1989-90. The data covers the total number made literate during this period, the results of the rural functional literacy programme, the non payment or delayed payment of honorarium to instructors, the effect of change over from the system of honorarium to regular pay scale, the non use of the supply of teaching/learning materials in 16 states, the funds expanded on post literacy programmes and the setting up of only 11 nilayams against the target

of 60 nilayams, the non receipt of certificates of receipt of grants from some voluntary agencies, the assessment of the agencies which showed that of the 406 voluntary agencies audited, 140 needed improvement, 77 were not capable of undertaking literacy programme, and 86 categorised as wholly unsatisfactory, or with doubtful benefits, the falling short of Shramic Vidyapeeths of their vocational training basis, the expenditure of Rs. 7 crores against the target of Rs. 35 crores for the mass programme of functional literacy, the several shortcomings of an implementing agency in Gujarat including doubtful claims of persons it made literate, not returning Rs. 22.96 lakhs of unspent balance, and Rs. 35.10 lakhs of worth of literacy kits remaining unused, and despite all this being given an additional grant of Rs. 136 lakhs and the similar lacks in centres set up, persons made literate and the shortfall in the approved budget by Nehru Yuvak Kendra Sangatha, - all this is a serious indictment of the literacy programme and should be examined by the National Literacy Mission and the Ministry for Drastic Corrective Action.

Technical education

A maritime university is to be set up based on the recommendation of the committee established for this purpose by the government. The university will provide training facilities for seamen, bring under its fold all existing training institutes such as TS Rajendra college, Calcutta, Lal Bahadur Sastri National and Engineering College in Bombay run by the Directorate of Marine Engineering Training, the privately run TS Rahman, and the Marine training Institute of Shipping Corporation of India, the NUSI for ratings to be set up in Goa and the IENS run by Ship managers. The university apart from bringing all these institutes under its supervision, approving courses and conducting examinations will also review man power needs of the shipping industry on a regional basis. In Tamil Nadu, the 1992-93 budget sets forth a Rs. 400 crore project for the development of engineering courses with the twin objects of creating a competitive edge to the colleges and stemming the brain drain to the extent possible. The latter objective is a doubtful one as the state and country will have to develop employment opportunities for top level engineers to prevent them migrating. This programme is an addition to the World Bank aided Rs. 75 crores for improving the infrastructure and teaching of 21 government and 34 aided polytechnics in the state. The government also announced in the Assembly that the services of 6000 part time teachers in the vocational stream of the higher secondary schools are to be regularised. Meanwhile the self financing engineering colleges which were charging a capitation fee of Rs. 60,000 to Rs. 70,000 for an engineering seat are now demanding Rs. 75,000 to Rs. 80,000. This is paid by the students from the well to do families and is to be encouraged as a means of reducing the government subsidy to these colleges for these students. Only there should be some assurance that the capitation fee is expended for the college's infrastructure.

Science

The VIII Plan lays emphasis on the integration of science and technology in the socio-economic sectors and has specified 4 thrust areas of major significance - basic research in front line areas, innovative research in exploitable areas like emphasis on R & D in emerging technologies, diffusion of appropriate

technology and technology support to ancillaries of large units. The integrated science and technology in the socio-economic and rural sectors is to help fulfil the basic needs of water, food, nutrition, health and sanitation, shelter, education, energy, clothing and employment. The plan and its priority and guideline is clean, now the scientists have to implement them. The Central Electro Chemical Research Institute, (CECRI) Karaikudi reports that it has developed 80 technologies which can be accepted for production in the small scale sector, including maintenance free lead and battery for defence application, nickel iron battery and solid polymers electrolyte fuel cell. Parallely the state announces that TIIC will set up a Technology Development Fund (TDP) to enable small scale industrialists to acquire improved knowhow and modernise their unit. TDF is in addition to the venture capital Fund set up by TIIC to promotes new technologies. The union ministry of agriculture will be set up in the state, for which the state government will have to provide 60 acres of land. The initial cost of establishing the Institute is estimated at Rs. 12 lakhs. The existence of the large extent of land without water and the many farmers idling without work and the flocks of sheep and goats grazing on parched land is said to have motivated this project, which if it carries out a lab to land programme effectively will be eminently worthwhile. The Comptroller and Auditor General in his report to Parliament in May has called attention to several scientific departments not implementing their projects and mismanaging their funds For instance the Department of Non Conventional Energy has not shown any results in : the Rs. 4.34 lakhs it paid to a PSU to set up solar dryers in Rae Baraill y, the Rs. 134 lakh given to IIT to set up a pilot plant and similar reports about the Zoological Society surveys and collection of specimen which are still not identified, the Rs. 4 crore over funding of a project by the Department of Biotechnology, the DST, DAE, Department of Space, ICMR, NCL and CRRI making grants for project which were not executed. Here various ministries and Department are involved and the Prime Minister's office should examine this report and take corrective action.

Health

On the serious Population problem, the latest (1982) World Population Report, apart from projecting the environmental damage which the exploding population does, spelt out what investment in women-in providing them better health, education and extra domestic employment - can do to lower fertility levels and slow population growth. There is ample empirical evidence which shows clearly the correlation between fertility and women education levels. In fact economic growth and improved quality of life are faster where women's status in education and other development parameters have improved significantly. The case of Kerala vrs UP, Bihar and Rajasthan exemplifies this linkage. The Action Plan of the Indian Population policy addresses itself to these vital issues. A major campaign has been planned under the Indian Population Project V (IPP-D) to create awareness of the ideal age of marriage and ideal age of child birth. This will be a change from the focus to date on promoting the use of contraceptives. Now the attention, apart of marriageable age, will be the ideal birth weight of the baby and expectant mother. A series of workshops were held involving doctors, health workers, sociologists to decide on the above parameters and how to go about spreading the message to the

target population. A 7 year programme - the IPP-V with an outlay of Rs. 69.13 crores has been in operation since September 1988 covering Madras, Tambaram, Pallavaram, Tiruvottiyur, Alandur, Ambattur, Madesavaram, Avadi, and Kathivakkam. The ideal age of marriage for women was held to be 21, in the workshop because of the state of bone growth. For men it is 25 years. Any earlier age, especially for women leads to complications. The state government reports that in 2344 health camps in different parts of the state covering 14.54 lakh persons, found 7.30 lakh persons suffering from various diseases, of which some were not even aware of their illness. As many as 22,781 persons have been advised intensive or specialised treatment. Under this scheme, 500 health camps are being held every Friday in various blocks and municipal health centres. In Kallakurichi village in South Arcot district, in one village, 25 children were found to be suffering from rheumatic heart and cardiologists from Salem and Coimbatore have been sent to treat them. In this programme, no additional expenditure is involved for the government or people, use the existing infrastructure, and some 12,600 doctors are now used for the health check up.

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V. Employment and Labour Relations

A Planning Commission Committee has recommended a total support system for educated unemployment. This special Employment Programme for the educated unemployed should be supported by directed lending, particularly from enterprises coming under the tiny sector. Besides this kind of credit, the total system should include training for entrepreneurship development and marketing for self employment ventures. There should be expanded training facilities and reconciliation of educated man power with the involvement of industries. In the medium and long term there is need for reorientation of the educational system so that there is education for employment and employability. These consideration applied particularly to tribals who traditionally depended and rated as poor. There is need also for environmental training and education of professionals so that economic growth and development are environment friendly. The most relevant employment programme is SEEUY, in which a recent evaluation states that the success rate in self employment is 60 per cent. The scheme is to be revised to cover any areas with population upto 1 lakh and the family income ceiling should be raised from Rs. 10,000 to Rs. 24,000 per annum. Entrepreneurs will be required to bring a margin of 10 per cent of the project cost and the subsidy reduced from 25 to 15 per cent. The scheme should aim at providing self employment to about 2.5 lakh unemployed educated youth annually. With an expected average subsidy of Rs. 6000 and credit of Rs. 30,000 per beneficiary, the annual credit required will be Rs. 150 crores and subsidy Rs. 750 crores. The Urban Development Ministry has proposed a

scheme for educated unemployed of employment generation in urban localities (SEEGUL), appliable to towns with a population above 1 lakh by promoting needed enterprises in manufacturing, services and business. SEEGUL will provide subsidy of 15 per cent, entrepreneur will contribute 10 per cent and loan from bank 75 per cent of project and will aim at setting up 2.08 lakh mixed enterprises per annum at a cost of Rs. 210 crores per year and will cover 10.40 lakh beneficiaries at a cost of Rs. 1050 crores during the VIII Plan to be shared between the union and the states on a 60:40 basis. The report points out that salaried jobs in the public and private sectors are not expanding and the structural adjustment programme under way will lead to displacement of workers from both the organised sector and related unorganised sectors, making these self employment schemes, really urgent. The state government has instructed officers in the labour department to give serious consideration and support to proposals made by managers for linking wages with productivity. Instructions to this effect have been issued in tune with the industrial policy announcement made in the State Assembly summarised in the last issue of the Bulletin.

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VI. Other Items

CABE

There was a meeting of the Central Advisory Board of Education in early May to review and approve the report of the committee on the Ramamurthy Committee review. The meeting after half a day plenary broke up into six groups on elementary education, secondary education and vocation, adult education, women's education and education in the north east region and on the afternoon of the second day approved reports of the groups. The main conclusion of CABE are set forth in the previous sector on educational reforms.

Institute of National Harmony

There was a meeting of the executive committee of the Institute of National Harmony. It reviewed that the effect of the new industrial policy on labour management relations and noted that the government is not clear on this aspect of the policy. While the Finance Ministry keeps talking about the quit policy, the Prime Minister and the Minister of Labour deny that the government has an exit policy and say that this is an invention of the media. The kindest explanation is that the government is not clear on this delicate aspect of the new industrial policy. The seminar which was run on this question in late April reflected the confusion. The committee decided that the Institute will concentrate on training managers and trade union leaders on the means and techniques of working together and not organise any further seminars.

IIC

There were 3 events in May in the India International Centre. There was a meeting of the Standing Finance Committee which reviewed a proposal for increasing admission fees of members and decided to recommend to the executive committee and Board of trustees a 50 per cent increase in the admission fee of all categories. This would be a contribution to the raising depreciation cost of the permanent fixtures of the centre. There was the monthly panel discussion on the globalisation of the economy when there were clear presentations of the need for it from the point of view of the economy, the dangers involved, the cautious views of the business world and the problems raised by the appropriation of genes, particularly of rare plants and animals by the developed world. This was followed the next day by a seminar on the Balance of Payment problems when the issues facing the country both in the trade and invisibles sector were brought out and the importance of pushing agricultural and agri-processed exports was brought out.

SRC and TNBCE

There was the usual bimonthly meeting of the Governing Body of the State Resource Centre when the work falling on the centres as a result of the spreading total literacy programme in 7 districts and the new programme in 7 further districts were reviewed. The Assistant Secretary was appointed as Secretary of the Governing Body and Mrs. Renuka Iswariah was appointed as Assistant Secretary. There was also a meeting of the Tamil Nadu Board of Continuing Education, when these two appointments were endorsed as they are also the Secretary and Assistant Secretary of the Board. The plan for the annual conference were reviewed and work on it proposed on certain lines.

RDI

As forecast in the last issue, the situation in the Board of Directors of RDI has become serious. The differences have not been resolved and has led one group to approach first the High Court and next the Company Law Board which had a first meeting on the issues at the end of May and has posted for the continuation of the hearing at the end of July. In the meanwhile there was a meeting of the Extraordinary General Assembly which voted on the appointment of 3 more directors to the Board. The Company Law Board has frozen any follow up action on it as of now.

June Development Seminar

The paper for the June seminar "Strategies for sustainable agriculture and irrigation in Tamil Nadu", by R.K. Sivanappan together with a summary of discussion of the paper at the seminar appears as the first article.

Second Article

A note on 'Challenges Facing Industry' appears as the second article.

Book Review

The review by Ms. Padmini Swaminathan of the book, "Forms of Production and Women's Labour: Gender Aspects of Industrialisation in India and Mexico", appears in the book review section.

M I D S News

Dr. Paul P. Appasamy gave a lecture on

1) "Urbanisation and Environment" at a workshop on water quality monitoring for high school students and teachers, organised by the Waterways Monitoring Programme, Centre for Environment Education (Ahmedabad) and Rotary at Asan School, Madras on 26th June, 1992.

2) 'Environmental Economics" at a training programme on Environmental Issues for NGOs of Southern States at the CPR Environmental Education Centre, Madras on July 3, 1992.

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Dr. Leslie Arnijo, Department of Political Science, North Eastern University, Boston Massachusetts led a Lecture Discussion on "Politics and Financial Reforms in Brazil : Lessons for India?" on 7th July, 1992.

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Strategies For Sustainable Agriculture and Irrigation in Tamil Nadu

by

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Introduction

Tamil Nadu is facing many challenges in the recent years in the development and sustainability in Agriculture. It is going to be still more in the coming years in view of the population growth. The small and marginal farmers are not able to make their both ends meet. Those who depend only on agriculture for their livelihood, are suffering in spite of large scale development in other areas after independence. Even drinking water is not available in many villages during summer in every year or in the alternate years and need not to speak of their other daily needs. Lands once fertile and productive, have become barren due either to non availability of water or failure of monsoon. Water is an essential component of sustainable agricultural development. Without appropriate and reliable water control and managements, sustainable agricultural development is simply not possible. Conservation and rational development of water, land and associated natural resources are essential ingredients for sustainable development.

2. Land and Water Resources

The average annual rainfall in Tamil Nadu is only about 948mm compared to India's average of 1250mm. The population of Tamil Nadu is about 7%, the area is about 4% and the water availability is only 3%. Compared to India's population, land and water resources which indicates that only 50% of the national average is available for Tamil Nadu. The Table 1 below gives available land and water for some of the states and the country.

Table 1 : LAND AND WATER AVAILABILITY PER PERSON IN INDIA

S. No.	Country/State	Net Sown area	Total area in Ha. utilisable water mHm Ground water+Surface water	Population in million (59)	Land availability per/ person in Ha.	Water availability per person/year in m3
1.	India	150	100	844	0.18	1185
2.	Tamil Nadu	5.6 or 6.0	4.0	5.56	0.10	719
3.	Andhra Pradesh	12·00	11.94	66.3	0.18	1800
4.	Karnataka	10.7	4.08	44.8	0.24	911

Source : Season and Crop Report, various issues

The rainfall is erratic especially in the last 5 or 6 years and hence the availability of the water is much reduced. The land area is being degraded and it is increasing, though Tamil Nadu cannot afford to leave an inch of land as fallow/ waste/degraded. The unutilised/unproductive land area in Tamil Nadu is given in Table 2.

Table 2 : DEGRADED AND FALLOW LAND (1950-1987) IN LAKHS Ha

Category	1950's	1960's	1970's	1980's	1987
Barren/uncultivated	9.73	8.85	7.05	5.74	5.53
Cultivable waste	8.70	6.60	4.15	3.20	2.95
Current fallow	11.05	9.69	12.02	17.35	14.10
Other fallow	6.60	6.12	5.31	5 85	8.35
Total	36.08	31.26	28.53	32.14	31.93

Source · Season and Crop Report, various issues

The total geographical area is 13 mHa of which the average net area sown in the last 20 years varies from 5.40 to 6.30 mHa and the gross sown area is about 6.80mHa-750mHa. The net and gross irrigated area remains more or less the same i.e. varying from 2.40mHa-2.70 mHa and 3.22mHa-3.50 mHa respectively and the intensity of irrigation is about 125-130%. The area of cultivation and irrigation is increasing during good rain years but the same is reduced when the rainfall is less than normal. The agricultural production has also not increased much in these years. Dr. Chopra Director General, I.C.A.R. has pointed out that the production in India as well as in Tamil Nadu is more or less the same in the last 4 or 5 years, where as the population is increasing at a high rate. The demand for water, land and production are increasing whereas the land and water resources are constant. Therefore the problem is how to make water a sustainable one by increasing production. To increase the production, irrigation facilities are to be increased. The National Commission on Agriculture and Irrigation have indicated that the irrigation potential of Tamil Nadu is only about 4mHa even if all the water resources are harnessed. But for sustainability and growing population, Tamil Nadu should have more than 5mHa under irrigation. Sustained production on both irrigated and rainfed lands requires optimal use of the physical environment in each soil, crop, climate and ecosystem.

For sustainable agriculture and irrigation, land should be maintained without involving degradation and water should be available either from rain/surface/ground water.

3. Problems

There is a general feeling that the rainfall is meagre and hence there is scarcity of water. But according to the hydrological cycle and the Department of Meteriology, Government of India, the rainfall has not reduced based on the 100 years analysis of data from about 100 stations. However it is a fact that the water scarcity is increasing and water problem is noticed everywhere in Tamil Nadu.

The ground water table is depleting fastly in all the districts. In Coimbatore, Periyar, Salem, Madurai, and in parts of Chidambaranar Districts many farmers have abandoned their open wells. In Coimbatore, Salem and Periyar Districts deep bore wells to a depth of 300"-600" (even upto 1000" in Rasipuram Taluk) are being constructed to enhance quantity of water supply. The farmers are in a fix since they have to rely on their wells as the discharge from their wells are very meagre and these wells may also fail in a short period. Though the number of wells are increasing in their working the operational areas are more or less the same.

However, according to the Directorate of Ground Water, Tamil Nadu State (1990), there are more than 16 lakhs wells in the state and the total water extraction is only about 50% at present and another 12 lakh wells can be constructed in the State. The districtwise ground water details are given in Table 3.

Table 3 : DISTRICTWISE GROUND WATER POTENTIAL

S.No.	District	Utili-sable ground water recharge 80%	Net ground water deve-lopment mcm	Balance availa-ble for deve-lopment mcm	Stage of ground water develop-ment as on 1984-85	Stage of ground water develop-ment at 1990	No. of wells feasible at 100% of ground water develop-ment
1.	Chengai/MGR	2096	1116	980	53	59	82,675
2.	North Arcot and Tirunelveli	2647	1677	970	53	70	80,873
3.	South Arcot	4377	1998	2379	46	50	2,44,654
4.	Dharmapuri	1190	563	726	47	52	52,272
5.	Salem	1502	1033	469	69	76	38,869
6.	Coimbatore	952	729	223	72	84	16,962
7.	Periyar	1160	782	378	67	74	32,868
8.	Thanjavur	1802	599	1203	33	36	1,03,051
9.	Trichy	2388	1066	1322	45	49	1,10,395
10.	Pudukottai	880	251	629	29	32	52,428
11.	Madurai	2040	1026	1024	50	55	85,327
12.	Ramnad/ Pasumpon Kamarajar	2669	452	2217	17	17	1,84,603
13.	Tirunelveli/ Chidambaranar	1584	692	892	44	48	74,445
14.	Kanyakumari	298	13	285	4	5	23,774
	State	25636	11987	13649	47	51	11,87,101

Source : Season and Crop Report, various issues

These two hypothesis are contradictory. However it is necessary to locate exactly where the over exploitation and under exploitation are prevailing.

There are about 39,000 irrigation tanks in Tamil Nadu. About 1/3 of the irrigated area is covered by these tanks. Due to siltation, encroachment and non mainte-

nance of the supply channel to many of these system tanks, the irrigated area has been reduced to about 27%.

In the case of Canal irrigation, major irrigation projects like Cauvery, PAP, Vaigai, Periyar depends on South West Monsoon and neighbouring states. The problem of getting water from Cauvery, PAP, Periyar is very well known. The Cauvery problem is with the tribunal. In PAP as per the agreement, though Tamil Nadu is to get a total quantity of 30 TMC, it has not got more than 18 or 19 TMC. Similarly, the Government of Tamil Nadu is not able to store to the full depth in the Periyar dam since the Government of Kerala is objecting for various reasons.

In the rainfed areas, as per the rainfall pattern (Table 4), it is possible to raise 2 rainfed crops in a year at least about 30 - 40% of the above, but the intensity of cultivation is only about 117%.

In the land use pattern, about 2.7 mHa is under paddy crop. Due to monsoon failure and reduced availability of water the area under Paddy has been reduced in the last 2/3 years. Though the number of wells are being constructed every year' the area under well irrigation is more or less the same. The average irrigated area from each well is about 2 acres. The crop and cropping pattern of these lands have not been changed inspite of the scarcity of water and the demand of water for other uses.

Table 4 : RAINFALL (in mm) DISTRIBUTION IN THE DISTRICTS OF TAMIL NADU IN SOUTH WEST AND NORTH EAST MONSOONS

S. No,	District	Monsoon Rainfall	
		South West	North East
1.	Madras	363.7	795.3
2.	Chingleput	397.7	691.0
3.	South Arcot	391.8	627.8
4.	North Arcot/Tiruvannamalai	440.1	385.5
5.	Salem	354.9	303.1
6.	Dharmapuri	366.6	290.9
7.	Coimbatore	179.2	438.7
8.	Periyar	212.9	316.3
9.	Tiruchirapalli	273.3	419.2
10.	Pudukottai	351.0	394.1
11.	Thanjavur	288.7	680.6
12.	Madurai	242.3	401.9

S. No.	District	Monsoon Rainfall	
		South West	North East
13.	Dindigul	221.7	418.2
14.	Ramanathapuram	134.6	498.1
15.	Kamarajar	162.2	432.1
16.	Pasumpon Thevar Tirumayam	330.5	394.9
17.	Tirunelveli	109.5	485.8
18.	Chidambaranar		
19.	Nilgiris	1061.3	513.6
20.	Kanyakumari	546.2	564.0
	Tamil Nadu	307.3	449.7

Source : Season and Crop Report, Govt. of Tamil Nadu

4. Irrigation Methods

Irrigation is as old as civilization; but it is the science of survival. The method adopted even now is the same old method adopted by the forefathers. Though various changes in technology have been found out and practised in other parts of the world, in India/Tamil Nadu, these advanced methods are not taken up in large scale. The area of irrigation is more than 80-mHa and it will reach about 100 mHa in the year 2000 A.D. The area under sprinkler and drip irrigation are only 7 lakh ha. and 16,000 ha. respectively.

5. Strategies for Sustainable Agriculture and irrigation

In order to maintain sustainable agriculture and irrigation, the following methods may be followed:

i) Diversification of crop and cropping pattern

The agricultural crop/cropping pattern practised in Canal, Tanks and well irrigated areas as well as in the dry land areas are the same one followed by our forefathers. Further the acerage yield obtained for many crops have also not increased much in the last 516 years. The average yield of paddy is still about 3.5 to 4 T/Ha though more than 908Ha of the paddy land is irrigated. The average yield even in the developing countries like Egypt, Korea are much more ie. about 8T/Ha. Farmers in some areas ie. Tamil Nadu have produced even 15 T/Ha. Therefore there is a need to reduce the paddy area, by producing the required rice from about 1.8 mHa instead of 2.7 mHa. This will not only reduce the water demand but also help in going for other crops and increasing production. Even now in water scarcity

areas, high water consumption crops like paddy, sugarcane, banana are grown. This tendency should be curbed in order to save water and increase the revenue from lands with the available water.

ii) More than 3.00 mHa (75 lakh acres) of land is not being utilised which is unproductive. These areas can be profitably used by taking up appropriate land development, soil conservation measures and introducing agro forestry/ farm forestry. The dry land tract has not been fully exploited. Even the researchers are not paying the needed attention to take up research for dry lands. By analysing the rain fall pattern and suggesting suitable sowing dates and variety of crops, it is possible to take up 2 rainfed crops in more than 30-40% of the dry land area as compared to 17% at present.

Water is the main input needed to grow agricultural crops and also for the sustainable agriculture. How to get it and use it?

a) Rain/Rainfall analysis

Rain is the only source from which water is obtained whether it is from canal, tank or well irrigation. The rainfall pattern is changing due to various other developments in the world, though the total rainfall may be the same. Therefore it is time to analyse the pattern, quantity and distribution in all the regions. This will help identifying the areas/pockets, how the rainfall is distributed and based on this, development plan can be formulated and implemented.

b) Canal and tank irrigation

Though we talk much about the shortage of water, large quantity of water is wasted in canal and tank irrigated areas. A study conducted at PAP has indicated that the gap between the first and last transplantation is about 50 days when the water is let only for 140 days in the canals. This shows that water released in the beginning was not fully utilised. Not only that the farmers influence and get water for atleast a month *more* in order to irrigate the late transplanted crops. To prevent the wastage of water, the following methods can be followed.

i) Insist the farmer to complete the transplanting within 15-20 days (Nile delta)

ii) Provide number of wells in the command area so that seeped or lost water can be pumped by the farmers and used simultaneously.

Though it is often mentioned that conjunctive use of water is necessary, but in practice, this is not followed. When water in available in the canal, farmers never use ground water for irrigation. This can be done without any problem since the farmers are not paying the electricity.

The other important water management practices are:

i) Follow recommended 5 cm depth of water for paddy irrigation-water saving method of irrigation.

ii) Introduce sprinkler irrigation for all closely spaced crops except rice in the command area.

The experiment results have indicated that by following the water saving method for paddy about 30-40% of water can be saved and the yield can be substantially increased. By introducing

sprinkler method. It is possible to increase the area by 100%. It is being followed in the advanced countries like USA, France etc. It is gratifying to note that the Central Board of Irrigation and Power (CBIP) is conducting research in many major command areas to introduce this method in the canal command areas in the country. This can be introduced to start with at LBP and PAP areas at Government cost.

c) Well irrigated areas

Ground water position is very precarious. The farmers are abandoning their open wells, since it is completely dried up and it is too deep to deepen it further. For their existence and livelihood, they borrow money and go for deep bore wells. There is no one to advise them about the prospects and the sustainability. The Directorate of Ground Water has reported that the utilisation of ground water is only 50% and another 12 lakhs wells can be constructed in Tamil Nadu. Detailed study must be done to give proper advice to the farmer especially when they go for deeper bore wells more than 500. There is nothing wrong in allowing the depletion to a reasonable level, but once in 3 or 4 years atleast the ground water table should be more or less maintained at the reasonable level for sustainable agriculture.

The crop and cropping pattern in the water scarcity areas where ground water is used for raising crops should be modified/changed. The method of irrigation should also be changed in order to bring more area under irrigation from the same water. More commercial crops like fruits, vegetables, flower etc. can be introduced by adopting drip irrigation methods. The drip irrigation has many advantages including water saving. The area under drip irrigation in Tamil Nadu is only about 5000-6000 acres and this has to be increased substantially. It is suggested that the method can be introduced at least for about 1% of the irrigated area (i.e. about one lakh acres in another 8-10 years. The cost of the system and B C. ratio for various crops are given in Tables 5 and 6. It indicates that it is economical and viable though the initial cost is little more. It is gratifying to note that Government of Tamil Nadu is encouraging this method by giving subsidy of 50% to the farmers from 1991.

d) Tank irrigation

In tank irrigation, paddy crop is grown. In some of the tank command areas, there are wells to use the ground water and in many tanks there are no wells. It is advisable to have wells in order to utilise the water efficiently. There is also a great need in diversifying the cropping system. Action may be taken in that direction in the future. Sprinkler irrigation can be introduced for closely spaced crops other than rice and drip irrigation for commercial and row crops.

The Government is spending about Rs. 25,000/ha. through EEC funds for modernisation of tank irrigation. These works can be finalised in consultation with the farmers. The routine type of repair works and other farm works need not be done in all cases. Work on conjunctive use of water can be taken up to solve both water and drainage problem, if need be construction of more wells in the command areas could also be explored.

Currently, the overall performance of many irrigation projects is much less than expected. Inadequate operation and maintenance and inefficient management

of an increasingly scarce water resource contribute to many socio-economic and environmental problems. It is not unusual to find that 60% of water diverted for irrigation is not made available for crop use. In modern high input system of irrigation canals (other than paddy) yields of 1.5 Kg/m^3 and paddy yields 0.3 Kg/m^3 of water consumed can be expected. The cost of providing the water is high and when more than half is not used by crops, the cost per unit production may be doubled.

e) Rainfed area

There is a great potential to increase the production from the dry lands and as well as from the degraded and waste/fallow lands. The entire area may be divided into appropriate/watershed areas and then suitable soil and water conservation/water harvesting measures can be implemented. In situ, soil and moisture conservation techniques can be adopted to increase the water availability in these tracts. Further to increase production, agro forestry/farm forestry can be implemented in the dry lands and degraded lands. Though the ground water position is not good, water is available at reasonable depths (40' - 60'), in the southern and northern district to provide protective irrigation for tree crops including fruit trees. Watering may be given for one or 2 summer after planting the trees.

Table 5 : Estimated Cost of Drip/Biwall Irrigation Systems for Various Crops with Different Spacings

S.No.	Kind of crop	Spacing m X m	Estimated Cost in Rupees			
			for 0.40 ha (1 acre)	for 1.20 ha (3 acres)	for 2.00 ha (5 acres)	Average cost per acre or 0.4 ha
1.	Coconut/ Mango	7.62×7.62 (25'×25')	4,475	11,930	18,550	3,880
2.	Banana	1.52×1.52 (5'×5')	113,670	38,740	62,835	12,805
3.	Grapes/Ber and pomegranate	3.04×3.04 (10'×10')	7,700	20,030	31,880	6,625
	Grapes	2.44×2.44 (8'×'8)	9,340	27,070	45,500	9,100
4.	Orange and Citrus specices	4.57×4.57 (15'×15')	8,040	19,980	31,200	6,580
5.	Papaya	2.13×2.13 (7'×7')	9,500	27,840	46,700	9,340
6.	Sugarcane/ Vegetables	Between Biwall 1.83m ('6)	12,750	34,200	53,750	11,190

N.B. : Water source is assumed to be close to the system. Estimated cost wise calculations based on Field Data collected from farmers and suppliers.

Source : Sivanappan and Associates, Constraints and Protentials in popularising drip and Sprinkler Irrigation Systems, 1990.

Table 6 : Benefit — Cost Ratio for Various Crops by Using Drip Irrigation System

S.No.	Kind of crop	Spacing in m X m	Cost of the System for 0.4 Ha in Rs.	Benefit-Cost Ratio	
				Excluding water saving	Including water saving
1.	Coconut	7.62×7.62 (25'×25')	4,475	1.41	5.14
2. i)	Grapes	3.04×3.04 (10'×10')	7,700	13.35	32.32
ii)	Grapes	2.24×2.44	9,340	11.50	27.08
3.	Banana	1.52×1.52 (5'×5')	13,670	1.52	3.02
4.	Orange	4.57×4.57 (15'×15')	8,040	2.60	11.05
5.	Acid lime/ Citrus sp.	4.57×4.57 (15'×15')	8,040	1.76	6.01
6.	Pomegranate	3.04×3.04 (10'×10')	7,700	1.31	4.04
7.	Mango	7.62×7.62 (25'×25')	4,475	1.35	8 02
8.	Papaya	2.13×2.13 (25'×25')	9,500	1.54	4.01
9.	Sugarcane	Between Biwall 1.83(6')	12,750	1.31	2.78
10.	Vegetables	Between Biwall 1.83(6')	12,750	1.35	3.09

Source : Sivanappan and Associates, Constraints and Potentials in Popularising Drip and Sprinkler Irrigation Systems, 1990.

In rainfed area, the primary importance are water conservation measures such as fallow management, control of runoff water and harvesting. Integrated with these practices are selection of High Yielding Variety, drought tolerant varieties, optimal planting datas to maximise the probability of rainfall during critical periods of crop growth. Whenever, there is a problem in getting good agricultural crop, tree crops. including fruit trees can be introduced. Protective irrigation can be given for these crops by providing bore wells with hand pumps. These are numerous examples in this state and elsewhere in this direction.

f) Reuse of waste water

Large quantity of waste water/sewage water from urban/semi urban areas are faced with the problems of disposal. A city with a population of 5 lakh with a per capita water consumption of 125-150 litres per day and a return flow of 85-90% will produce about 70,000 m^3 of waste water per day. It would be possible to irrigate an area of 3000 Ha from the treated, nutrient rich water. It would be possible to grow safely some 3,00,000 tons of vegetables per year with the recycled effluent, without the need to add any chemical fertiliser to the soil. In Israel with 65% of the effluent recycled in 1991, there was a net increase in water available to agriculture of some 20%.

In the last 40 years; the total agricultural water requirement has increased by about 4 or 5 times and the percentage of water used for agricultural purposes has increased to 90%. However the following trend is expected in the next 10-20 years

a) Total amount of water used for agriculture purpose will continue to increase steadily.

b) The percentage share of water used for agriculture will continue to decline further.

(90...%— 75% in another 10-15 years)

However if the present programme to alleviate poverty and to achieve food se'f sufficiency are to succeed, agricultural water management has to become a priority item. Regrettably, there are no signs of this happening. There is an urgent need to have agricultural water management extension officers in each block/taluk, atleast to start with in water scarcity and excess regions, as in the case of advanced countries where water is a constraint for agriculture.

With a view to minimising the effect of water as a fundamental constraint in relation to water resources, for the development of agriculture it seems paramount to apply a strategy comprising several complementary measures. This strategy is based on the following measures :

Improving the evaluation of subterranean and surface water resources, by analysing their operation and dynamic behaviour;

Establishment of legislation (especially for ground water regulation) concerning the management of water resources that can be applied by involving the beneficiaries;

Establishing a system of follow up, estimation and evaluation of data, enabling planners to envisage solution based on data close to reality;

Promoting the replenishment of aquifers and intensifying work on soil and water conservation to reducing the soil loss and sediment transport;

Recycling treated waste water for irrigation and industrial use;

Consider water as an economic good, rather than a free commodity to avoid wastage;

Enhance the efficiency of water use and reduce losses and wastage;

Raising the value placed on water in irrigation by selecting the most remunerative crops and minimising consumption;

Improving the performance of public services responsible for managing water resources; and

Management of the water at the lowest appropriate level.

6. Conclusion

Water is a essential factor for sustainable agriculture and irrigation in the state. This factor is dependent on a natural research that is irregular, limited, limiting and degradable. Owing to these characteristics, there is a risk of the development system being jeopardised and hence an appropriate strategy for the short and long term, designed to assure the protection of management of this precious resources is therefore essential.

Summary of Discussion

The author at the outset mentioned the challenges facing Tamil Nadu Agriculture in the light of the acute water problem as a sequel to failure of monsoon. For sustainable development of agriculture, appropriate water control and management systems linked to land and natural resources are essential ingredients.

The average annual rainfall in Tamil Nadu vis-a-vis the national average is low. When compared to the population of India, the share of Tamil Nadu is 7%. While in the case of land area it is 4% and water availability is only 3%. The erratic supply of rainfall was one of the causes for concern but more alarming was the proportionate increase in the land under categories of fallow/waste/degraded. While the net and gross irrigated areas remain stagnant, the intensity of irrigation depends solely on the monsoons. Concern has been expressed that food production should keep pace with population growth. Increase in irrigation facilities alone may not yield the desired results if it is not properly matched with optimal use of physical environment, soil, crop, climate and eco-systems.

An alarming feature of the water problem is also the rapid depletion of ground water table in major districts of Tamil Nadu. Even though there were over 39,000 irrigation tanks in Tamil Nadu irrigating 1/3 of the area, the problems of siltation, encroachment and non-maintenance of supply channels to many of these system tanks has reduced the irrigated area considerably.

There is an urgent need for diversification of crops and cropping patterns as the average yield of paddy is also stagnant when compared to other developing countries like Egypt and Korea. Appropriate land development and soil conservation measures can go a long way to profitably take up agro forestry/farm forestry.

The need to introduce conjunctive use of water and introduction of sprinkler irrigation to increase the area can also save water, and yield can be increased substantially. While well irrigation and deeper bore wells are dug, it must also be ensured that over a period of time the ground water table level is more or less maintained at reasonable levels for sustainable agriculture.

There is also the urgent need to change the cropping pattern in water scarcity areas and more commercial crops can be introduced by drip irrigation methods.

Diversification of cropping pattern and sprinkler irrigation for closely spaced crops can be useful and productive. The inadequate operation and maintenance and inefficient management of the increasingly scarce water resources contributes to many socio-economic and environmental problems.

In rainfed areas too apart from water and conservation measures, selection of HYV varieties is also necessary.

In the discussions that followed a question was raised on the cultivation of cereal crops in Chingleput district vis-a-vis crops like oil seeds. It was also suggested that paddy cultivation be restricted and to go in for other crops which are less water intensive. Another question pertained to the effective use of water over a longer period of time if there is to be a major shift to Horticulture in the case of Tamil Nadu. The author mentioned that the trend towards commercial crop production was increasing and farmers earned more from cultivation by using drip irrigation.

Another question related to the mismatch between the use of fertilizers and cropping pattern and management of water. The author mentioned about the escalating costs of raw materials and problem of inter-linking of rivers of North and South. There was scope to bring barren land for cultivation and scope for extension work existed as the National Waste Lands Authority were also involved in such activities.

On the question of the South West vs North East monsoon a participant referred to the high degree of variation of the latter due to cyclonic storms and the difficulty in planning caused by it. The author mentioned that the Arupukottai Research station has done weekly prediction before monsoon sowing. The rain gauges are very important to measure the intensity of rainfall and for agricultural practices.

On the question of recharge of water at 500 feet and its feasibility, the author was of the view that even at 135 ft the water table is not remunerative to Coimbatore farmers and it is necessary to go in for wells at a greater depth. On the sustainable nature of fertilizers it was pointed out that pollution from fertilizers and pesticides continue to remain a major problem.

V. JACOB JOHN

Challenges Facing Industry*

The challenges facing industry are of short term and medium term nature.

Short Term

The immediate challenge facing industry is the cash crunch facing all of them, as a result of RBI directives to the banks to limit the credit extended to industrialists. The banks are turning down credit/loan requests from all industrialists - large, medium and even SSI. This is so severe that it not only reduces their working capital fund, but for some causes anxiety as to how they could meet their monthly salary bill. It is now necessary for this freezing of credit to industry to be selectively and gradually lifted - starting with SSIs and the large and medium ones who have modernised and restructured their enterprises.

A second short term problem facing industry are the curbs placed on imports including capital stock and components, which they can import only against REP/ Exim scrips. On this, they will have no relief atleast till April 1992 and even after, it is the level of the country's foreign exchange resources which will decide the lifting of the curbs. Some of the sensitive industries - like engineering, chemicals, automobiles, electronics will have to live with this denial of their imports and look for alternative in the form of foreign equity or restructured domestic equivalent.

The third problem facing industry spills over into the medium term also. Immediately it wants to know what the new industrial policy announced on July 24 really amounts to. What does delicensed being replaced by registrations mean for new enterprises and expansions? What are the small print that needs to be made known and studied. There are a number of important areas like power, steel and telecommunications where private sector projects are waiting to be readied now. What does automatic approval mean? A number of projects have been awaiting approval for 1, 2, and 3 years. Can the entrepreneur now raise the necessary capital markets - as the bank credit continues to be restricted and proceed with the land purchased, equipment indenting and hiring the work force so that the project can go onstream next year?

There are many other short term problems facing industry, including the opening up of the financial sector which it urgently needs. Does the delicensing

*An article by Dr. Malcolm S. Adiseshiah for the Souvenior - The Society of Auditors, Madras, August 9, 1991.

and liberalisation apply also to the financial sector?

Medium Term

The medium term challenges are decisive and will mark the future of the industry.

The first is the problem of improving the quality of their product. This calls for modernisation and technological upgradation. If the technology is not available within the country, it has to be imported. A support and adjunct to this objective of improving the quality of our products is to force industry to face competition. That is what the various deregulations should lead-to an increased domestic competition. Because competition between firms has been restricted, qualitatively shoddy products are marketed, earning large profits. Now with the opening up of the industry and the market, there will be an impetus to improve the quality of the product. Further with the loosening of the FERA regulations, not only will foreign collaboration as a means of importing technology and improving the quality of the produce become possible, there will also be investment and operation by foreign firms, including mechanisms which will add to the domestic competition, and also gradually enable Indian products to compete qualitatively in the international market.

A second challenge facing industry is that while entry into industry has been opened up, not requiring any license except for 18 industrial areas, enabling the establishment of new units, expansion of existing enterprises and the entry of fresh entrepreneurs, there is no parallel exit policy that would make possible not only the closing down or sale of loss making, unviable units, and those using technology which is completety out of date, but also of cutting back on the overstaffing and over employment which is a characteristic of all public sector enterprises, and increasingly of private sector enterprises. This latter is not fully recognised because all attention has been concentrated on cutting the fat in the public sector enterprises. But in the private sector, enterprises which are not meeting the demands of the market, or which are operating on an uneconomic scale which cannot be corrected because it involves moving firms to a more spacious location which is resisted by labour, or operating on outdated and misleading marketing and feasible studies, are not allowed to be closed down. The resistence here is by trade unions backed by the political parties which have founded them or to which they are affiliated. It is hoped that the National Renewal Fund proposed in the Industrial Policy and funded in the budget for 1991-92 will give trade unions an assurance that workers rendered unemployed will be provided with a social security safety net and be retrained and redeployed. In this matter, it is interesting that industry has suggested that it could contribute Rs. 500 crores to Rs. 1000 crores to the Fund. This should make possible the exist policy which industry needs and with which it can become viable.

A third special challenge facing some public sector industries-like the public sector steel plants, the Heavy Engineering Corporation, the chemicals factories, the fertilisers firms and coal mines etc. which have been established with the help of Soviet technology in the 50s in some cases the technology used and in use is the free world war technology -which because of this totally obsoles-

cent technology and which has been superceded by several generations, face no alternative but to be either closed down, or so completely restructured that it will be like starting a new plant with a new labour force trained in the latest technology. Comparisons are made of the low productivity and output of the Indian steel industry and South Korea's steel industry, the serious lags in heavy machinery products of HEC compared to those from Japan, the low output per man hour of Indian coal mines compared to Australian coal mines and so on. The clue to all this is that with the technology being used by the Indian firms, both in productivity and output per unit of capital or labour, is and will be always abysmally low and so the way forward is to close them down and completely renovate and restructure the units.

A fourth challenge facing industry is on the export front. Here there are areas where there is a comparative advantage with Indian firms dealing for example with leather, tea, food/fruit processing, cotton, man made fibres etc. which can be further sharpened and improved by a well planned strategy of building foreign alliances. This could be aimed at bringing the product to the qualitative international level for the domestic market first, spilling over to the export market. The strategy of foreign alliance could be as at present to serve the domestic market or it could be through the various export packages like the EOUs, the 100 per cent Export Zones or through understanding and arrangement with foreign collaborations to split the international market.

Finally, there are many issues facing industry which are just beginning to appear now, such as how to move from the capital cum energy intensive cum import intensive consumers durables production meeting the demands of the well to do sectors reaching down to the lower middle class which NCAER estimate at 30 crores of persons to producing the wage goods needed by the largest group who belong to the below Rs. 12,500 per annum households; there is also the question of cutting costs which is probably one of our foremost priorities and closely related to our level of competitiveness; there is the problem of mergers and acquisitions which the amendment to the MRTP act and the removal of the ceilings or holdings or market share will encourage and hasten. But here again while the present fragmentation of industrial capacities need rectification and the firms to be of a size which will enable it to both enjoy economies of scale and face global competition, the corporations must also shed a lot of fat, and as one industrialist puts it "the corporation will have to get leaner and meaner". Finally there is the problem of unaccounted money which is not only generated solely by the industrial sector; there is also the problem of industry holding large funds, increasingly unaccounted funds, ahead. How can this aspect of the flight of capital be stopped and the money held abroad be brought back to the country? On that depends the fiscal viability of the economy.

Book Review

I. S. A. Baud : Forms of Production and Women's Labour : Gender Aspects of Industrialisation in India and Mexico.

Sage Publications, (India), 1992, pp 321, Rs. 295

The book under question is a meticulously researched and well organized study dealing with differences in women's employment in large-scale, small-scale and artisanal forms of production and the implications these variations hold for women's power within the family-based household. Using the cotton textile industry and shrimp processing industry (for India), and the shoe industry (for Mexico) as case studies, the author has analysed her findings under the following heads :

(a) Categories of labour and production units,

(b) Women's access to employment,

(c) Women in the labour process,

(d) Women within the household.

Important conclusions arrived at as far as women's labour in the Indian textile industry is concerned, include: (p 176-178).

(i) The gender division of labour varies between sectors. In mills, women are the smallest percentage of the labour force ; 14 per cent. In the powerloom, they are 33 percent of all workers (including unpaid family labour), and in the handloom sector, they are 47 percent of all workers. In the mills, the use of women's labour has decreased rapidly as a result of rationalisation, coupled with restrictive labour laws which apply only to women workers. In the powerloom sector, there has been a greater demand for labour than supply, and this has led to an increasing use of women's labour as the number of production units grow. In the handloom sector, the use of women's labour does not change much as it is related to her membership within the family, the unit of production.

(ii) Women are found in all types of labour relations within the three sectors, but with different types dominant in each sector. In the mill sector, women work exclusively as permanent workers, but are not newly taken on. Men are being hired and are found to work as both casual labour and apprentices. In the powerloom sector, both wage labour

and unpaid family labour exist for women in equal numbers; for men, wage labour is more prevalent. In the handloom sector, 75 per cent of the women work as unpaid family labour and the remainder as short-term wage labour.

(iii) The degree of segregation by function also varies. In the mills, there is a very strong segregation of men and women by function. In the powerloom sector, women form more than 50 percent of all workers in each function except weaving, have access to all functions. In the handloom sector, women almost exclusively carry out the preparatory functions. They were only if male members of the household are not available. Segregation is greater than in the powerloom sector.

(iv) Substitution of men for women does occur in the mill sector. It is linked to the fact that women receive more protection from labour legislation than men (no night shifts allowed), so that when this is enforced, men are considered more 'useful' workers. Substitution does not occur in the handloom or powerloom sectors.

(v) Marginalisation of women by function is occurring in the mill sector, as women are being relegated from two functions to one lesser-paid function, which is also being slowly replaced by the other to which they are losing access. Again, the expectation is that a similar process could occur in the powerloom sector if rationalisation were also to begin. In the handloom sector this process is not apt to occur.

(vi) On the question of the effects of productive work on women's social autonomy, the author notes that the outer limits of the variation in social autonomy are set mainly by existing family structure and religious beliefs. Of such factors, the main influences on women's social autonomy were jati (Naidus practising less seclusion than Chettiars), marital status of women (married women having more autonomy than unmarried women), and the extent of daily house work carried out by the woman worker (the heavier her workload the less autonomy she had).

In the Indian shrimp industry the author notes that the casualisation of work (from registered units to unregistered units) has occurred extensively, as firms subcontract the pre-processing out to small production units through middlemen. This has led to lower wage levels, lack of fringe benefits and social security for the women workers who are found in greater numbers in the more casual types of work than in the relatively more secure types of work. Further, segregation between men and women by function is almost total in this industry, with very little change over time. (p 214-215).

In the Mexican shoe industry, according to the author, women are found in all types of labour relations ranging from permanent wage work to unpaid family work. The majority of women work in temporary wage work, disguised wage work (domestic outwork) and unpaid family work. The permanent wage workers found in large factories are a small minority among all women workers. The division of labour between men and women is most pronounced in workshops and domestic outwork. In large and medium-size factories, women are gaining access to more and more skilled functions but this has to be seen in the context of deskilling that has occurred for men.

Baud has herself indicated the several potential areas of research which have emerged from her study. These include the suggestions that models of subcon-

tracting relationship are much more varied and extensive than usually thought of and therefore the variety and impact of these links need to be traced further. Further, the occurrence of various forms of casual labour extending even to large-scale production units needs to be studied for other industries and servives. The impact of changes within production units on "employment" needs to be specified within each category of worker since the extensive use of unpaid family labour leans to significant underestimation of women's contribution to economic activities. The extent to which a women's productive work and income increases the extent of her autonomy (bargaining power) within the household is still a relatively under developed area of empirical research and also an area where methodological problems also remain largely unresolved.

Our submission is that the further development of a model which incorporates the various relevant aspects, and, a *solution* to existing methodological difficulties *cannot* be sought within existing framework(s). If we begin by recapitulating what (industrial) development, say, to the women workers of this country, we find that:

(a) Women are concentrated at the 'casual's and of the continuum in terms of labour relations, with family relationships predominating, (b) women have less opportunities than men for becoming producers in their own right-fewer women than men are single workers or employers, and (c) women are more heavily represented in household production than in non-household production.

Therefore, beginning an analysis with the present production structure *as given cannot* answer the question (methodological or otherwise) as to how this same system will increase women's overall autonomy bargaining power) precisely because the present production structure is itself premised on a gendered division of labour in society. Solutions within this framework/will only increase the space available to women *without necessarily* increasing their autonomy.

'Autonomy' as a concept has nowhere been adequately defined by the author, in the study; 'autonomy' has been eduated broadly with women's bargaining power. This is not the place to go into a discussion of the concept; the burden of our argument however is that, if the author had made the *attainment of autonomy by women* as a central focus, the contradictions in trying to use this framework would stand out clearly. This would also explain to some extent why factors such as education, among others, had little influence on women's autonomy within the household.

A framework enmeshing the operation of both patriarchy and the production structure would, in our opinion, go some way towards explaining the existing methodological difficulties.

This is not to detract from the thoroughness of the enquiry and/or the important insights that have been brought out enriching our understanding of the gender aspects of industrialization. The book is a must for students of gender studies in particular.

PADMINI SWAMINATHAN

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